Amateur Radio

July 1996
Volume 64 No 7

WIRELESS INSTITUTE OF AUSTRALIA

Journal of the Wireless Institute of Australia

Full of the latest amateur radio news, information and technical articles including...

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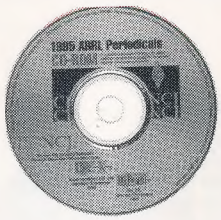

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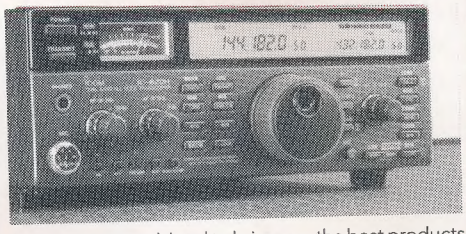

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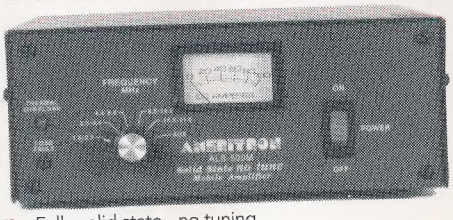

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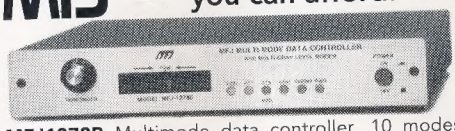

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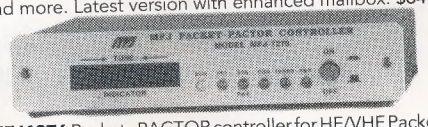

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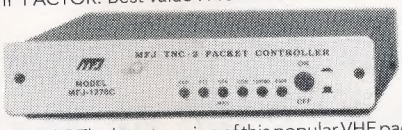

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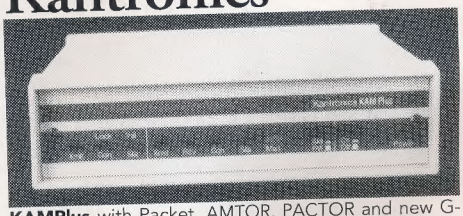

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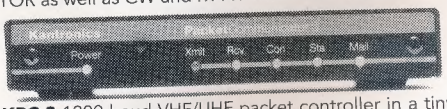

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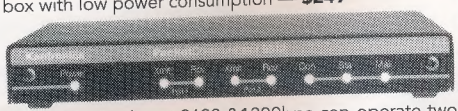

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Cover

Mal Johnson VK6LC operating from shack No 1 (80 and 40 m) on Sandy Island OC-214. See *How's DX* (page 36) for a report on this IOTA DXpedition.

(Photo by Mal VK6LC)

BACK ISSUES

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Founded 1910

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Editor's Comment

Hams in the News

I am writing this on 10 June, the Queen's Birthday holiday in all States except Western Australia. Just to be a little different, the VK6s observe the Queen's Birthday on 30 September. Actually, the Queen's real birthday is 21 April.

Twice a year, on Australia Day and the Queen's Birthday holiday, notable people are recognised by being awarded medals in the Order of Australia. Once, many years ago, British honours were awarded on the Queen's birthday and on New Year's Day, but Australian honours were introduced and first awarded in 1975.

The preceding two paragraphs have taken a surprising amount of research to produce. The various dates involved are not as well publicised as they might be. But never mind. Why have I gone to all this trouble? Because, in the list of medals awarded in the General Division of the Order of Australia there is one of our colleagues, Ron Churcher VK7RN of Devonport, Tasmania. Congratulations, Ron!

Only five months back, in the Australia Day honours list, we had another amateur recipient, Don Hopper VK7NN. Two VK7s! How many in the mainland states? Only one. Graham Ratcliff VK5AGR was awarded an OAM (for his satellite work) in the 1991 Australia Day honours. It does seem that Tasmania has a magnetic attraction for medals. Well done VK7!

Another notable amateur was not only seen on TV in most States, but also made the front page of the Brisbane Courier-Mail on 26 April. This was Harry Angel VK4HA, aged 104, who led the Brisbane ANZAC Day march in a

Continued on page 55

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. *"How to Write for Amateur Radio"* was published in the August 1992 issue of *Amateur Radio*. A photocopy is available on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

IARU Committee Looks at Future of the Amateur Radio Service

The International Amateur Radio Union (IARU) has set up a committee to examine the International Telecommunications Union (ITU) radio regulations covering the Amateur Service and the Amateur-Satellite Service in the context of the ITU's program to simplify the radio regulations over forthcoming World Radio Conventions (WRCs) in 1997 and 1999.

The IARU aims to ensure that the Amateur Service remains viable, meaningful and of value, not only to licensees, but also to the general public. The Amateur Service regulations are to be discussed at WRC-99.

The IARU Working Group on *The Future of the Amateur Service* is charged with studying the ITU radio regulations with a view to formulating any possible changes needed to arrive at a better definition of the Amateur Service and perhaps a more accurate representation of the aims, requirements, obligations and privileges for the Amateur Service in the next century. IARU Vice-President, Michael Owen VK3KI, is a member of the working group.

Issues being considered include:

* the definition of the Amateur Service;
* the character and content of transmissions by amateur stations;
* the provisions required for emergency (that is, disaster) transmissions;
* easing of requirements to achieve international recognition of the Amateur Service;
* the technical and operational qualifications for transmitting amateurs; and any other question or issue the working group considers relevant.

The working group intends to start discussions within the amateur radio community by way of supplying discussion topics and background information, and suggesting possible solutions.

The working group is to invite IARU member organisations (the WIA is one), regional groups (IARU region associations in Regions 1, 2 and 3), amateur groups and individuals to comment on issues raised.

At the IARU Region 1 Conference in October this year, it is anticipated that most of the member societies (from Europe, the Mediterranean and Africa) will have reactions to many of the points raised so far.

The Region 3 Conference in Beijing next year should see further discussion, in conjunction with many other WRC-99 issues, which will then be only two years away. The WIA plans to send a delegation to Beijing.

The WIA welcomes input from interested individuals or groups. Please direct your correspondence to your Division's Federal Councillor. *(Thanks to John Arsse VK4QA and Graham Kemp VK4BB for assistance with material).*

AGM Sees President Re-elected, SMA Praise Exposure Draft

Neil Penfold VK6NE was re-elected unopposed for a third term at the Annual General Meeting of the WIA, held in Melbourne over 18-19 May.

The three directors elected at the 1995 AGM were also returned to office for 1996-97, being Peter Naish VK2BPN, Lance Bickford VK4ZAZ and Rowland Bruce VK5OU. Peter Naish remains WIA Federal Secretary.

By agreement with the WIA's sister society across the Tasman, the New Zealand Amateur Radio Transmitters (NZART), each hosts visitors to the society's AGM from its counterpart every alternate year. This year it was NZART's turn to come to Australia, with President Jim Meachen ZL2BHF and Carol Gaudin ZL2VQ, attending the Melbourne meeting in the Ibis Hotel.

The AGM dinner on the Saturday evening was honoured to have the manager of the SMA Victorian Area Office, Peter Young, attend. Peter gave an informative and thought provoking speech covering issues on licensing, regulations and electromagnetic compatibility (EMC). He praised the Institute's Exposure Draft document on amateur radio licensing for being comprehensive, carefully thought out and well argued.

Mr Young, also a licensed amateur, added his own observation that EMC issues will likely become a challenge for radio amateurs in the future and suggested it was perhaps an issue that needed as much attention as licensing had gained in recent years, particularly as it was getting increasing attention in the media and by municipal councils. A lively question and answer session followed Mr Young's speech.

WIA President, Neil Penfold VK6NE, subsequently wrote a letter of thanks to Peter Young.

International Contestants Fly in for Direction Finding Championships

Contestants from half a dozen overseas countries fly in this month for the Second Region 3 Amateur Radio Direction Finding (ARDF) Championships, being held in Townsville over 15-20 July.

The Chinese Radio Sports Association (CRSA), the Japan Amateur Radio League (JARL), the Korean Amateur Radio League (KARL), and the New Zealand Association of Radio Transmitters (NZART) are all fielding teams for the Championships. Several small teams from eastern Europe are also participating. A local team is contesting the Championships on behalf of the WIA.

There will be society officials accompanying the teams from overseas. The new Secretary General of the CRSA, Chen Ping BA1HAM, who is also Chairman of the International Amateur Radio Union (IARU) Region 3 ARDF Committee, is to be the guest of the Townsville Amateur Radio Club, which is hosting the Championships.

ARDF is a cross between a cross-country run and the old familiar amateur radio fox hunt. Several transmitters are placed at intervals along a course. They turn on and off in a timed sequence. Bands used are 80 m and 2 m. Contestants travel on foot and have to find the transmitters and complete the course in a given time. ARDF is an activity for young and old alike. Only simple, handheld equipment is required.

This activity is growing in importance around the world, and particularly in the Asia-Pacific region. Australia won the privilege of hosting the 2nd Region 3 ARDF Championships at the IARU Region 3 Conference held in Singapore in September 1994.

Reprieve for 6 m from Radar Interference

A 49.8 MHz "wind profiler" radar was proposed by the Bureau of Meteorology earlier this year to be located near Wollongong, on the coast south of Sydney. But, potential problems for six metre band operators in the surrounding region were averted thanks to liaison between the Spectrum Management Agency (SMA), the Bureau of Meteorology and the WIA's Federal Technical Advisory Committee (FeTAC).

These wind profiler radars employ a large antenna array aimed vertically and generate RF pulses of more than 50 kilowatts in order to detect wind patterns in the lower atmosphere which threaten the safety of aircraft. The radars are generally located in the vicinity of flight paths associated with nearby airports.

Although the antennas fire the RF vertically, the modulation products from the pulsed signal spread several hundred kilohertz away from the centre frequency and the "spill" from the antenna sides yields strong signals across the lower portion of 50 MHz. As this is the DX end of the band, operators use very sensitive receivers and thus a 49.8 MHz wind profiler radar can wreak havoc. One of these radars has been operating for some years near Darwin but, thanks to the efforts of local amateur Rex Pearson VK8RH, it coexists through cooperation with the makers and Bureau of Meteorology operators who have set the frequency and the pulse repetition rate so that a null in the modulation products occurs at the low end of the 50 MHz band.

The 49.8 MHz radar proposed for Wollongong was to be ex-NOAA (National Oceanographic and Aeronautic Administration of the US), similar to that operating in Darwin. However, following discussions with the Bureau of Meteorology and assistance from John Patterson VK3ATQ, a CSIRO scientist with expertise in radar systems and the effects of high power signals on receiver front ends, a decision has been made to substitute a new 44 MHz radar at Wollongong and to relocate the 49.8 MHz unit at a remote site. The new 44 MHz radars are being developed in Adelaide. *(Thanks to FeTAC Chairman, John Martin VK3KWA).*

Have you advised the WIA Federal Office of your new callsign? Use the form on the reverse of the *Amateur Radio* address flysheet.

EMC Highlighted at Sydney Conference and Workshops

A three-day conference and series of workshops on electromagnetic compatibility and interference in Sydney in the first week of June highlighted health, technical and regulatory issues in the lead up to mandatory standards to be enforced from 1 January next year under the Spectrum Management Agency's EMC framework.

Opened by the Spectrum Manager, Christine Goode, those attending the industry conference heard presentations from international speakers Don White, a world authority on EMC and author of many books on the subject, and David Imerson from Britain, Chairman of the European Competent Bodies Association and manager of EMC-IBM in the UK. Among the other speakers, Dr Ken Joyner from Telstra gave a talk on the contentious subject of health issues in relation to mobile phones, while the executive manager of the SMA's Business Directions Group, Roger Smith, explained aspects of the EMC framework.

The EMC framework (outlined in previous *WIA News* releases) aims to address compatibility problems arising from wanted and unwanted emissions and interference arising from the use of consumer and industrial electronic and electrical equipment.

WIA representatives Dr David Wardlaw VK3ADW and Roger Harrison VK2ZRH attended the event.

Heat Over US Satellite Proposal

The American Radio Relay League (ARRL) has launched a campaign to head off a proposal from US commercial satellite interests to seek allocations in the two metre and 70 centimetre bands for future low-earth-orbit (LEO) satellites.

The American LEO satellite industry is flying the proposal in preparation for consideration at the next World Radio Conference in 1997 (WRC-97).

Apparently, one of the WRC-97 agenda items being forwarded to the US Federal Communications Commission (FCC) includes consideration of possible additional frequencies for the mobile satellite service, which already has allocations below 1 GHz. In early May, according to the ARRL, an industry representative proposed a list of "candidate bands" for little LEOs, including 144-148 and 420-450 MHz.

The ARRL argued that "no one with the slightest background in radiocommunication could possibly believe that a mobile-satellite service could be introduced into either band without disrupting existing and future amateur operations."

As the FCC's process for public participation in decisions has been "streamlined" in the preparations for WRC-97, circumventing earlier surfacing of this proposal, the ARRL has urged its members and other US amateurs to take advantage of the FCC's invitation to send "input at any time".

A similar proposal has not, so far, surfaced in Australia, but the WIA is monitoring the situation. Dr David Wardlaw VK3ADW is the WIA's representative on the Australian WRC preparatory working groups.

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■ Equipment Review

Yaesu FT-900 All Mode HF Transceiver

*Reviewed by Ron Fisher VK3OM**

FT-900 transceiver with front panel attached, and HM-31 microphone.

After a long delay, Dick Smith Electronics have decided to introduce the FT-900 to the Australian market. The FT-900 has been available on overseas markets now for nearly two years, although the Australian version is an updated model fitted with a Collins 455 kHz mechanical filter in place of the more usual ceramic filter.

The FT-900 slots between the FT-840 and the FT-990 and, with the recently introduced FT-1000MP, gives Yaesu one of the widest ranges of HF transceivers on the Australian market.

FT-900 Features And Facilities

The FT-900 is a direct descendent of the FT-890 and has inherited many of the FT-890's excellent features; however, it also perpetuates a few of its mistakes.

The main feature of the FT-900, setting it apart from the earlier model, is the remotable front panel. The FT-900, however, is not a miniature transceiver like the TS-50, IC-706 or DX-70. It is a normal size transceiver, identical to the FT-840, FT-890 and the old FT-757. The actual dimensions are 238 mm wide, 93 mm high and 253 mm deep, with a total weight of 5.3 kg.

About two thirds of the front panel can be removed for remote installation. This remote section contains all of the essential operating controls, leaving such things as the direct frequency entry pad, keyer controls, microphone gain and RF power controls, MOX, VOX and AGC selectors, and the headphone socket, on the remaining section of the front panel. The remotable panel contains an excellent LCD which gives frequency readout, a multi-function bar graph metering system, mode and VFO indicators, and the memory channel indicator. Controls include audio gain and squelch, notch and IF shift, clarifier control, plus 21 push buttons that control power, meter selection, mode selection, VFO and memory selection, and up/down buttons for band selection.

The microphone is also connected to the remote panel section via an eight pin telephone modular plastic connector. Connection of the remote front panel to the main chassis of the transceiver is via a single eight-pin sliding connector which mates when the remote panel is clipped on to the transceiver. There are no messy cables and plugs to tangle; Yaesu have got their remote system right first off.

Unfortunately, a remote cable was not included with our review transceiver, so I can only guess that it would work well. The remote cable is available as an option and the kit includes a mounting bracket for the panel.

Transceiver technical features include a receiver with full general coverage from 100 kHz to 30 MHz with all modes available. The transmitter has an output of 100 watts on all HF amateur bands from 160 to 10 metres, but not including 6 metres. Again, the transmitter has provision for all modes which include SSB, CW, AM and FM.

An automatic antenna tuner, which can be installed in the transceiver, is available as an extra cost option. This was not included in our review transceiver so, unfortunately, I cannot comment on its performance.

The inclusion of a "Collins" mechanical filter in the 455 kHz IF section is interesting. I would guess that many newcomers to the hobby might not have heard of mechanical filters or know how they work. Let me give a quick explanation. Mechanical filters were developed in the early 1950s to provide a solution to the problem of achieving a selectivity curve with a flat top and very steep sides. In those days crystal band pass filters had not been developed to any extent and high frequency filters of, say, 5 and 8 MHz were unknown. The Collins Company in the USA developed a series of filters which operated at 455 kHz for use in their 75A series receivers. The filters used input and output transducers with disk resonators in between. Bandwidths of 300 to 6000 Hz were available. However, with the introduction of high performance crystal filters, mechanical filters became less common.

The filter used in the FT-900 does not

give any indication of just where it was manufactured. The type number is certainly of Collins origin but there is also a Yaesu part number on it. Regardless of this, it works very well. Its performance would be very much better than the original ceramic filter installed in the earlier series, but how much better than the optional crystal filter available at the time is hard to say.

The bandwidth of the mechanical filter is rated at 2.75 kHz and, as we will see later, the response is very smooth and flat. Optional filters are available for CW operation with bandwidths of 250 and 500 Hz but no narrow SSB filters are available. The optional filters are not easy to install. A circuit board has to be removed and the new filter soldered in place. The FT-840 and the new FT-1000MP use plug-in filters which can be installed in seconds.

Several useful operating aids are included. For the receiver, an IF shift and a notch filter help to reduce interference. A receiver front-end single position attenuator and a switch to bypass the receiver RF stage (the IPO or intercept point optimisation) control strong signal inputs that might cause receiver overload. There is no RF gain control. A receive-only clarifier, which has a range of +/- 9.9 kHz, is included but, as we shall later see, has one serious problem.

On the transmit side, a speech processor gives the audio a very worthwhile boost. Yaesu call this a frequency shift processor. The carrier oscillator can be adjusted from -300 to +500 Hz to set the audio response to suit any particular taste. Our on-air tests were carried out with this set to -100 Hz which gave the best audio balance using the supplied MH-31 microphone.

For the CW operator, an electronic keyer is in-built with a front panel speed control. Reverse sideband switching helps the operator to dodge QRM. Either semi or full break-in operation can be selected. Transmitter power output is adjustable from the maximum of 100 watts or so down to QRP levels. Finally, a thoughtful feature; the tilt bail that lifts the front of the transceiver has a rubber cover which will protect the finish of your desk top.

FT-900 on the Air

The first thing needed to put the FT-900 on the air is a 20 amp, 13.8 volt DC power supply. A generous length DC lead, terminated with a standard six pin plastic connector, is supplied with the transceiver. Dick Smith Electronics no longer import Yaesu power supplies, so you won't be able to purchase the matching FP-800. However, there is some good news with power supplies. See the D-3800 power supply review elsewhere in this issue.

The first thing noted when the FT-900 is switched on is the display. It has a bright orange background with black figures. It's quite startling. Three tuning rates are selectable via the menu system and give 2.5, 5, or 10 Hz steps. I must say that I much prefer slow tuning rates so the 2.5 Hz step rate is to my liking. I cannot say the same about the tuning knob, which is small and not well placed. I guess this is caused by the constraints of the remote front panel. It is, however, very smooth and has a good spinning action.

Two often-used controls are very close to the tuning knob. These are the VFO A/B button and the clarifier control. I found that I often knocked the tuning off-frequency when using these controls. Also, for base station use, the tuning knob is too high. However, if a remote front panel is essential, then this is a small price to pay.

Speaking about the clarifier, this is another fault carried over from the FT-890. There is one main problem. If you are offset by, say, 5 kHz there is no way to cancel this except by turning the clarifier control back to the zero setting, which might involve several revolutions of the control. Strange, to say the least. It would seem to have been a simple thing to provide a second function on the clarifier button to clear the offset back to zero.

In general, the receiver sounded very good within the constraints of the rather small top-mounted speaker. I would recommend an external speaker for home-station use and, of course, it would be essential for mobile use if the main transceiver section is remotely mounted.

The slightly wider selectivity provided by the Collins filter shows up with excellent SSB audio quality; however, the audio response on AM reception was very poor (see later test report). I actually found that AM sounded better with SSB selected and the carrier tuned to zero beat. I suspect that Yaesu are using excessive audio tailoring after the AM detector which may well be modifiable.

Band changing is very easy with several methods available. With the front panel attached for base-station use, you have the greatest choice. The keyboard at the bottom right of the front panel provides direct access to each amateur band and, of course, with the direct digital synthesiser used in the FT-900, the last used frequency on each band

FT-900 transceiver with the front panel detached.

returns each time. The same keyboard allows direct frequency entry by pushing the "ENT" button and then entering each digit in turn.

On the remote panel section, bands are changed via the up/down buttons. Either amateur bands or general coverage stepping is controlled by the HAM/GEN button situated under the display. With HAM selected, again the last used frequency on that particular band is returned. Also, there are two VFOs which allow two bands or two frequencies on the same band to be selected with the push of a button. The FT-900 has 100 memories, all of which are fully tunable up or down from the memory frequency. Ten of these memories can be set to provide upper and lower frequency limits for use in the "scan" function.

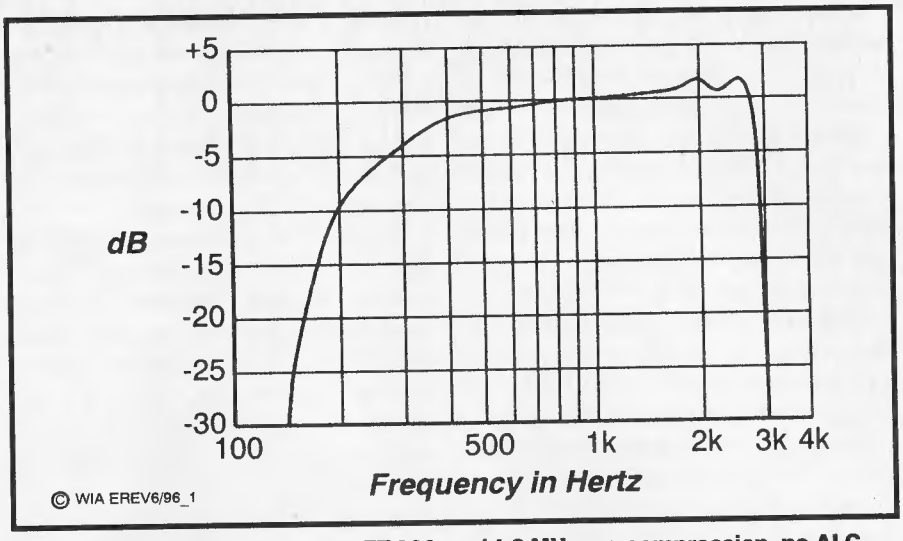
SSB transmission tests were carried out using the supplied HM-31 hand microphone. As the microphone connection is via an eight pin telephone-type connector, I was not able to test the transceiver with other Yaesu microphones that I have, but quality reports were very good with the HM-31.

The in-built speech processor adds quite a bit of bite to the transmitted audio and this, along with the ability to shift the carrier point relative to the filter, allows the operator to optimise the transmitted audio to suit individual voices.

The cooling of the FT-900 is very efficient. The entire top of the cabinet is part of the very efficient heat sinking system. However, I must admit to getting quite a shock when the cooling fan came on for the first time. It was louder than expected. The fan is thermostatically controlled, and under normal temperature conditions, only comes on infrequently. After a while I did get used to it. There is no doubt that it does its job well.

HM-31 Microphone

This is a brand new type for Yaesu and is supplied as standard equipment with the FT-900 and also the new FT-1000MP. It is quite comfortable to hold and the push-to-talk button operates a micro-switch which only needs light pressure to actuate. The microphone insert is a 600 ohm dynamic unit which produces very acceptable audio quality. There are three up/down buttons recessed into the top front of the case with the centre button switching the "fast" tuning function on and off. I found these buttons rather difficult to use and would prefer to have them on the top. On the rear is a two position tone switch. Position one gives full frequency response, while position two gives a degree of bass cut. Most contacts preferred position two. The curly cord is connected via an eight pin modular connector to the microphone and also to the transceiver. The HM-31 supplied with the FT-1000MP uses a standard eight pin metal connector at the transceiver end. By the way, the HM-31 is made in China.



Transmit audio response of the FT-900 on 14.2 MHz, no compression, no ALC, 20 watts output at 1 kHz.

FT-900 On Test

I carried out the usual series of tests, starting with transmitter power output and current drain. These tests were conducted using a 13.8 volt regulated power supply which was, in fact, a Yaesu FP-707 which is possibly very near in design to the unobtainable FP-800.

Band	Power Out	Current Drain
1.8	109 watts	17.0 amps
3.6	106 watts	16.8 amps
7.1	106 watts	16.8 amps
10.1	105 watts	16.8 amps
14.2	107 watts	17.0 amps
18.1	103 watts	17.5 amps
21.1	105 watts	17.0 amps
24.9	102 watts	17.5 amps
28.5	100 watts	17.5 amps
29.5	97 watts	18.0 amps

With the power control set to minimum, the power output on all modes varied from 2.0 watts on 1.8 MHz down to 1.5 watts at 29.5 MHz. These are ideal levels for QRP operators.

The usual test for transmitter intermodulation distortion was carried out. Again this is done by comparing the distortion of the review transceiver with that of a transceiver that produces a known amount of distortion. The figure for the FT-900 was 22 dB compared with full SSB power output at 14.2 MHz. This is about average for a 12 volt powered transceiver although, as we have seen in previous reviews, some rigs are very much better in this respect.

The frequency response test for SSB transmit proved to be one of the best yet measured. The curve was within +/- 1 dB from 500 Hz to 2.8 kHz, with the -6 dB response at 250 Hz and 2.9 kHz and an extremely sharp cut-off above this; no doubt this was due to the excellent response of the Collins mechanical filter. Carrier and sideband suppression were also excellent, both being in the region of -50 dB.

The LCD readout for output power is very accurate in its reading. It is calibrated at 10, 25, 50, 100 and 150 watts.

Receiver Tests

The first receiver test was to check the S meter calibration. The S meter on the FT-900 is, of course, not a meter but a bar graph as part of the LCD. It is

calibrated at S1, 3, 5, 7, 9 and +20, 40 and 60 dB over S9. The results with both the attenuator and IPO switched out were:

S Level	Input Required
S1	2.5 µV
S3	3.1 µV
S5	6.3 µV
S7	10.6 µV
S9	80.0 µV
S9+20 dB	800.0 µV
S9+40 dB	10000 µV
S9+60 dB	0.07 V

Switching from band to band, the signal input to give an S9 reading was:

Band	Input for S9
1.8 MHz	70 µV
3.6 MHz	80 µV
7.1 MHz	80 µV
10.1 MHz	80 µV
14.2 MHz	80 µV
18.0 MHz	80 µV
21.0 MHz	100 µV
24.5 MHz	100 µV
28/29.5	125 µV

The calibration for FM on 29.5 MHz was similar, with S9 requiring 100 µV input. Squelch sensitivity for FM at 29.5 MHz was 0.1 µV, with the receiver sensitivity for the same mode and frequency measured at 0.25 µV for 12 dB SINAD with the preamp on and attenuator of – somewhat better than the specified 0.5 µV.

Sensitivity on the lower bands was measured at 14.2 MHz USB. At 0.25 µV I measured 16 dB SINAD as against the specified 12 dB, again an excellent figure. The received frequency response for SSB was essentially the same as I measured for SSB transmit. The AM receive response was measured with the following results:

Frequency	Response
100 Hz	-12 dB
200 Hz	-3 dB
400 Hz	0 dB
800 Hz	0 dB
1.0 kHz	0 dB
1.5 kHz	-2 dB
2.2 kHz	-6 dB
2.5 kHz	-8 dB
2.7 kHz	-9 dB
2.8 kHz	-10 dB
3.0 kHz	-12 dB

As you can see from this, the AM response is actually inferior to the SSB response at the high frequency end. The low end is slightly extended but the overall -6 dB response of 150 Hz to 2.2 kHz is very poor.

Receiver Audio Power Output and Distortion

Yaesu receiver audio output impedance is four ohms as distinct from the eight ohms used by most of the other manufacturers. It's important to note this if you intend to connect a speaker that you might have in the junk box. Maximum power will be reduced by using an eight ohm speaker.

Maximum power output is 2.2 watts at 7% distortion. This exceeds the specified 1.5 watts at 10% by a generous margin. With the output reduced to normal listening level of around 100 milliwatts, the distortion dropped only 0.6%. A minimum signal of 1.5 µV is required to produce maximum audio power. With an eight ohm load connected, the power output drops to 1.5 watts at 15% distortion.

FT-900 Instruction Manual

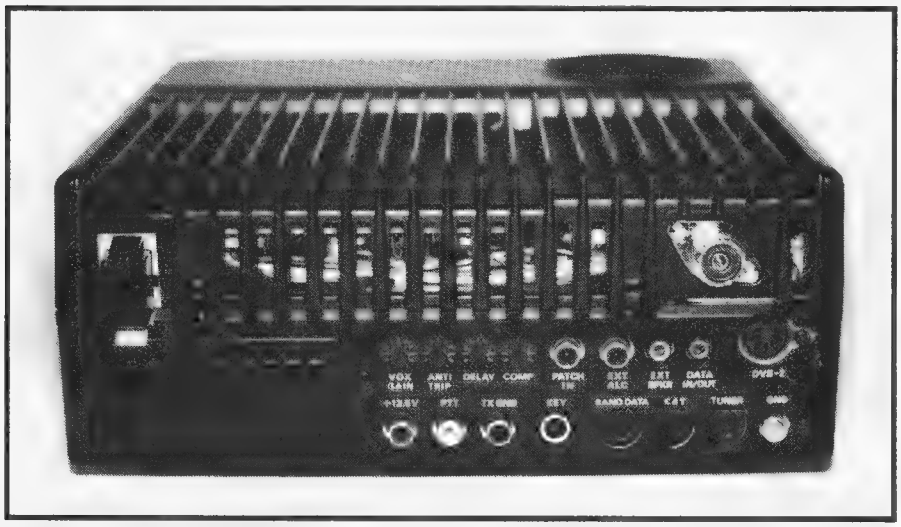
If there is one thing that deserves the highest praise with the FT-900, it is the instruction manual. The general quality of the printing and reproduction of photographs is excellent. This is a manual that you will actually enjoy reading and, when finished, you will know all about your transceiver. However, one small item lets it down. I would like to see heavier and better quality paper used for the covers. The existing covers are little heavier than the internal pages and I think would soon become dog eared. A full schematic diagram is supplied. I score the FT-900 manual 9 out of 10.

FT-900 Conclusion

I would have to rate the FT-900 as a very competent transceiver. Using it as a home station, you will find most of the facilities that are needed for general operating. To make use of the remote front panel, you will need the optional YSK-900 separation kit and possibly the ATU-2 automatic antenna tuner. The six metre cable supplied with the separation kit should enable placement of the transceiver proper in the boot of the car. I feel it is too large to slide under one of the front seats; however, this probably depends on your car.

Our review transceiver was supplied to us by Dick Smith Electronics to whom all enquiries should be directed. The FT-900 is priced at $1995. The YSK-900 separation kit is priced at $99.95 and the auto ATU is $499.

24 Sugarloaf Road, Beaconsfield Upper VIC 3808



Rear panel of the FT-900.

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■ Receivers

An Experimental Receiver for Two Metres FM Using a Car Radio

For those with few funds and a creative bent, Peter Parker VK1PK suggests one way to monitor VHF signals.*

Here is a project which is considered suitable for Youth Group leaders or those in the teaching profession to use in attracting beginners to the field of radio.

The use of AM car radios can greatly simplify the design and construction of receivers for the amateur bands. Just a simple converter plus a 455 kHz BFO can transform any car radio into a usable multi-mode receiver for any HF or VHF band. While receivers for HF, six and two metres have been constructed, only the two metre unit will be described here.

In this receiver, an AM car radio is used as a tuneable IF/detector/audio strip, covering 0.5-1.6 MHz. Many advantages over conventional homebrew regenerative, direct conversion and superhet receivers are offered by this technique. The most obvious are extreme simplicity and low cost. AM-only receivers are readily available second-hand for $5-10 each. An AM receiver can be made to receive all modes by adding a simple BFO for CW/SSB reception, or tuning to one side of an FM signal to resolve it through "slope detection".

The car radio's 1.1 MHz tuning range is wide enough for numerous applications, and its ease of tuning is better than on many homebrew and commercially made shortwave receivers. The combination of crystal controlled converter and car radio provides good frequency stability for SSB reception, while most sets feature five push-button "memories" for your favourite frequencies.

Car radios generally exhibit a higher standard of performance than is usual with domestic portable receivers, and their metal cases are another bonus; with a few precautions, breakthrough from AM broadcast stations can be virtually eliminated.

The receiver presented here is an example of how this technique can provide good performance for the minimum of cost. You will find that reception of local repeaters will be almost as good as with your regular transceiver and that frequency drift is too slight to be noticed. The set lacks a squelch circuit, though this is no great liability, as the hiss from FM receivers is more objectionable than from the AM system used here.

Note that sensitivity of this mixer-only design is not high, and it is recommended that a proper outdoor antenna for 2 m be used for best reception. Those residing some distance from desired stations should consider adding a front end amplifier to boost signals. Audio quality is surprisingly good with normal 5 kHz deviation FM signals despite the use of slope detection. It will never be quite as good as with conventional FM receivers, but on the stronger signals the set's performance leaves little to be desired. It should be possible for the experimentally-minded to fit a proper FM detector and squelch circuit to the car radio should they so wish. *(Note that using slope detection for FM reception does not offer the impulse noise reduction or limiting properties of a proper FM detector. Ed)*

How it Works

Fig 1 shows a block diagram of the whole receiver. Incoming signals around 147 MHz are mixed with a locally produced 145.9 MHz oscillator to produce a difference frequency in the 0.5-1.6 MHz range. This difference frequency is fed to the car radio to be converted to 455 kHz, amplified, detected and amplified again as an audio signal. In this setup, the first intermediate frequency is tuneable (0.5-1.6 MHz). This allows us to cover a range of frequencies, while retaining the frequency stability of a crystal-controlled first local oscillator.

The mixer uses the readily available BF115 NPN transistor. The sharp front-

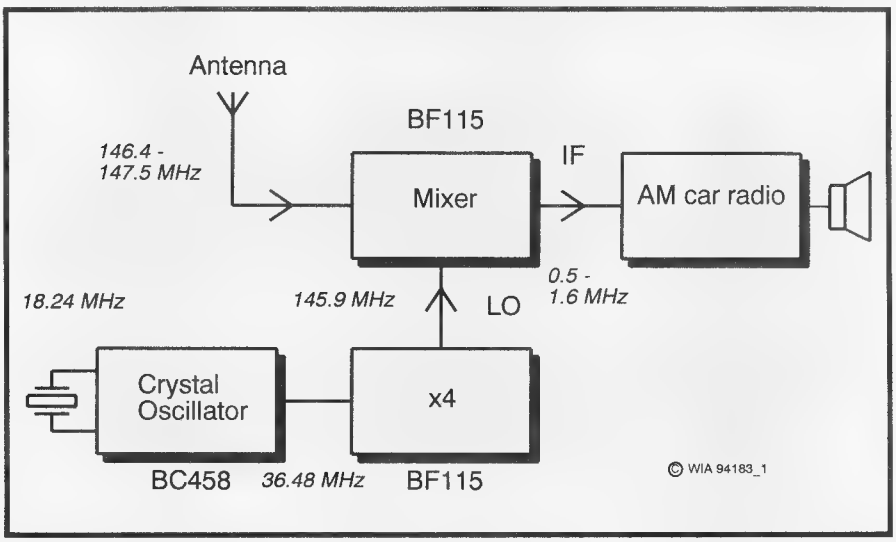

Figure 1 – Block diagram of the 2 m FM receiver.

end tuning of most car radios renders a tuned choke in the mixer's collector unnecessary. Instead, an RF choke is used to provide a broadband response between 0.5 and 1.6 MHz. A single tuned circuit tunes the input to 147 MHz. Both the transistor and the antenna are tapped down the coil to preserve mixer stability and ensure sharp front-end tuning. The circuit originated in Ref 2, and has been modified only slightly.

A well tried circuit has been used for the 18 MHz crystal oscillator (Ref 3). The common BC548 operates well in this circuit. The 36 MHz second harmonic is taken from the BC548 collector. The 1 µH inductor and the 30 pF capacitor attenuate other output frequencies. A two turn winding around the 1 µH coil takes enough output to drive the quadrupler which, like the mixer, uses a BF115 transistor. The collector tuned circuit is adjusted to resonate at 146 MHz. Ref 4 provided the circuit for the multiplier, which worked well without need for modification.

Selection of the Crystal

Start by choosing the frequency range that you wish to tune. You are limited by the 1.1 MHz tuning range of the car radio. It is desirable to cover all repeater outputs and commonly used simplex frequencies. In Australia, the required range is 146.26 to 147.375 MHz.

A local oscillator frequency of 145.9 MHz is most appropriate as it will provide a range of 146.425-147.500 MHz. In addition, re-peaking of the front end will allow you to tune the 144.300 to 145.375 MHz range as well.

Note that because there is only one tuned circuit prior to the mixer, and a low IF is used, this receiver may exhibit rather poor image rejection performance. To minimise the reception of unwanted commercial VHF signals, the local oscillator should not be operated higher in frequency than the desired tuning range. Keeping the oscillator below the tuning range keeps spurious responses within the two metre band.

If a crystal has to be purchased, it should be a fundamental (parallel-mode) unit for 18.2375 MHz. Load capacitance can be 30 pF. Alternatively, an "available" crystal can be used. It may be on a different frequency to that recommended previously, so the receiver's coverage will miss some frequencies. The prototype, for example, uses an 18.260 MHz crystal. As a result, all repeater outputs are tuneable, but simplex frequencies below 146.600 MHz cannot be received.

Construction of the Converter

Several methods of construction could be used for the converter. The technique used here is simple, cheap, quick and permits modifications to be easily made. It is thus ideal for VHF equipment. Components are mounted on a 6 x 15 cm piece of un-etched blank printed circuit board material.

All components which are connected to earth are soldered directly to the copper surface of the board, while the remaining parts are simply supported by their connections to other components. Where there are no components to support a connection point, a high value resistor (>1 megohm) is soldered to the board to act as a standoff. The resistor's high value ensures that proper circuit operation is not affected by this addition.

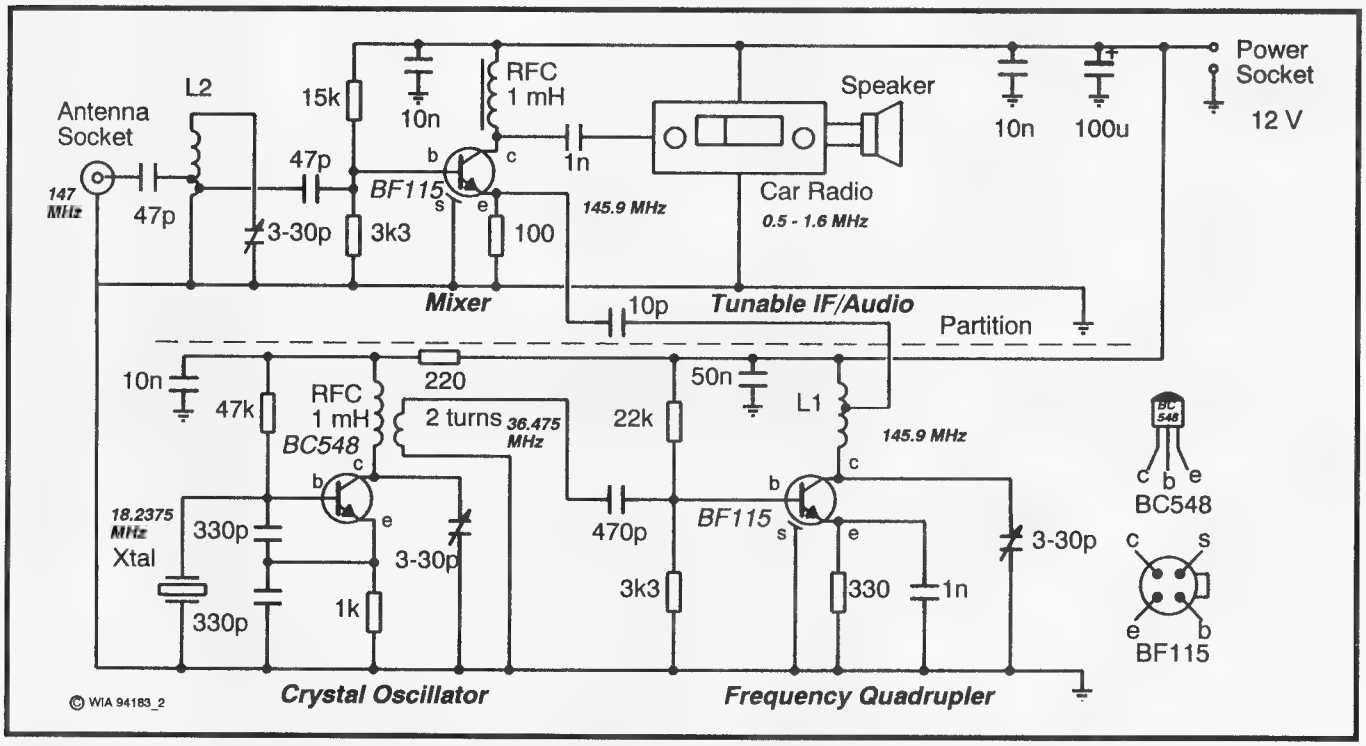

Figure 2 – Schematic diagram of the 2 m FM receiver.
Coil details: L1 (multiplier coil) is 5 turns, 5 mm diameter, 12 mm long. Wire is about 0.7 mm in diameter. The tap is 1½ turns from the 12 V end. L2 (front-end coil) is 5 turns, 8 mm diameter, 20 mm long. Wire is about 0.7 mm in diameter. Both taps are ½ turn from ground.

(Beware high impedance points in other circuits which could be affected by this technique. Ed)

Testing Stage-by-Stage

The oscillator should spring to life once 12 volts is applied to the free end of the 220 ohm resistor. If a two-turn coil is wound around the barrel of the 1 µH inductor, some RF should be detectable with an RF probe or frequency counter, if one side of the two-turn coil is earthed.

Adjusting the trimmer will cause the output level to vary. The trimmer should be peaked to give maximum output on the crystal's second harmonic (ie around 36.6 MHz). The frequency as displayed on a frequency counter should remain stable.

Once satisfied with the operation of the crystal oscillator, the next stage to build is the quadrupler. This stage is as simple as the oscillator to construct, except that this time a coil (L1) needs to be wound. The caption to Fig 2 provides sufficient information.

Connecting power should cause an RF signal to appear on the unconnected end of the 10 pF capacitor. There will be several peaks and troughs in output as the quadrupler's trimmer capacitor is adjusted. One of those peaks will be on our desired frequency of 145.9 MHz. Once again, a frequency counter is invaluable when performing this type of work.

Construction of the mixer can now commence. This part of the circuitry must not contain any long lengths of unshielded lead. Failure to observe this rule will make the receiver prone to break-through from local broadcast stations. For this reason, coaxial cable must be used to link the converter's mixer output to the antenna socket on the back of the car radio's case.

Alignment

This process is very simple. A signal of about 147 MHz is required. This can either come from a local repeater which is in use or be generated locally by a signal generator or hand-held 2 m transceiver. With an outdoor antenna (such as a 1/4 wave ground plane) connected to the receiver, it should be possible to resolve FM transmissions by tuning to the centre of the signal, then slightly off to one side. Tune for best clarity. If signals cannot be received, try adjusting the front end trimmer capacitor; tuning is quite sharp. Once signals are heard, re-peak the oscillator and multiplier trimmer capacitors for maximum signal strength.

After peaking the front end, the receiver is ready for operation. As a finishing touch, you may care to make a new dial scale to give an indication of the frequency being received. If your local oscillator injection frequency is 146.000 MHz, however, you will not need to make this addition; simply add 146 to the existing numerals on the dial. For example if the set's dial is on "8" or "80" (ie 800 kHz), you are tuned to 146.800 MHz.

If your converter has been properly built, there should be no significant break-through of AM broadcast stations. Should you reside in an area near broadcast transmitters and experience reception of unwanted broadcast stations, you could enclose the converter in a metal box. If only one station is marring reception, and this disappears when the antenna is removed, a tuned trap on the offending frequency wired across the converter's antenna socket may effect a cure.

Further Thoughts

A simple receiver for two metres FM has been described. It is easy to build and low in cost, and is capable of providing good reception of local FM activity. However, for serious work, the receiver needs added sensitivity, and a proper FM detector, plus improved image rejection characteristics. In each case a little added complexity will be needed to improve performance.

One potential for the use of this receiver could be as part of an ultra simple FM transceiver for repeater operation. A conventional crystal controlled FM transmitter is constructed. It is modified so that the crystal oscillator and multipliers are operational during both transmit and receive. A small amount of RF (at the transmit frequency) is taken from the final multiplier and fed to the mixer in this converter. The repeater's output frequency is mixed with the transmit frequency to produce a fixed IF of 600 kHz, which is fed to the car radio. Because the oscillator and quadrupler are made redundant with this technique, only the mixer transistor is required. Thus, to convert any 2 m transmitter into a transceiver for the repeaters, all one needs is one transistor mixer and an AM car radio.

For six metres, the technique is the same except that the car radio is tuned to 1 MHz to accommodate the wider repeater split.

The receiver in its present form tunes only the most popular 1 MHz segment of two metres. Through the use of "reverse-tuning" or "band imaging" techniques, almost the entire band can be covered by just two crystals. For instance, a 146.4 MHz crystal gives 146.950-148.000 MHz on its forward tuning range and 144.800-145.850 MHz on its image. The addition of a crystal on 145.400 MHz will provide 145.950-147.000 and 143.800-144.850 ranges.

If you are willing to put up with "backward tuning" and image problems,

WIA News

User Survey for Radio VNG

The National Standards Commission is conducting a survey among users of the time and frequency standard broadcasts of Radio VNG, which can be heard in the 5 MHz, 10 MHz and 16 MHz bands.

The National Standards Commission anticipates some effects from the re-organisation of administrative and funding arrangements for most public sector services since the recent change of government. These changes may have important implications for the future of Radio VNG, according to the Commission, hence the user survey.

The three-page, 16-question survey paper can be obtained by contacting Dr Richard Brittain, Secretary of the National Time Committee, at the National Standards Commission on telephone number (02) 888 3922, fax number (02) 888 3033, or via e-mail to richardb@ozemail.com.au.

this approach represents an economical way of tuning the whole band. While I have not tried this technique with this converter, an HF converter was successfully constructed using this method. With two crystals, 3.5-7.5 MHz continuous coverage was obtained.

The lower frequencies used allowed a high degree of image rejection to be achieved. This is difficult on VHF with low intermediate frequencies.

Although SSB reception has not been tried on this receiver, previous experience with converter/car radio combinations on both HF and six metres has been encouraging. The BFO can be either on 455 kHz or at the signal frequency. The latter is probably the most attractive if you are using this receiver in conjunction with a SSB/DSB or CW transmitter.

Running a low powered carrier signal on the receive frequency (originating from the transmitter) removes the need to build a 455 kHz BFO. To properly resolve incoming signals, the transmitter needs to be at least slightly frequency agile. Ref 5 shows a suitable companion 2 m QRP DSB transmitter for this receiver.

An RF preamplifier must be added to this converter to ensure good sensitivity if you intend to use the receiver for SSB/CW working.

Appendix

If you need to buy a crystal for this converter, the following suppliers should be able to help:-

Beacon Crystals, 24 Stanley St, Leabrook, SA 5068 Ph (08) 332 3031

Max Howden Crystals, Box 287, Lilydale, VIC 3140 Ph (03) 9735 4661

J & A Crystals, 20 Delville Ave, Mentone, VIC 3194 Ph (03) 9583 4533.

References

1 *DeMaw, D: FM Pip-Squawk MK III, QST August 1971.*

2 *Tilton, EP: 50 MHz Transistor Transceiver MK II, QST Feb 1967.*

3 *Hepburn, H L: Amateur Building Blocks – Pt 4, Amateur Radio, Nov 1975.*

4 *Reed, J A: Minimum 2-Metre Satellite Transceiver, QST May 1983.*

5 *DeMaw, D/Hayward, W: Solid State Design for the Radio Amateur, ARRL, 1986.*

** 7/1 Garran Place, Garran ACT 2605*

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■ Technical

Technical Abstracts

*Gil Sones VK3AUI**

Whilst preparing *Technical Abstracts* I noted some Silent Keys whose work is well known to those of a technical bent. They were all noted in *QST* for February and March 1996 as Silent Keys. They had contributed a great deal to amateur radio. They were:-

Helge O Granberg K7ES/OH2ZE, who worked for Motorola writing many technical publications;

Frank C Jones W6AJF, who had many achievements and technical publications; and

Philip Rand W1DBM, who did much pioneering work on TVI.

Direct Conversion Receiver

A simple direct conversion receiver appeared in *CQ DL*, November 1995

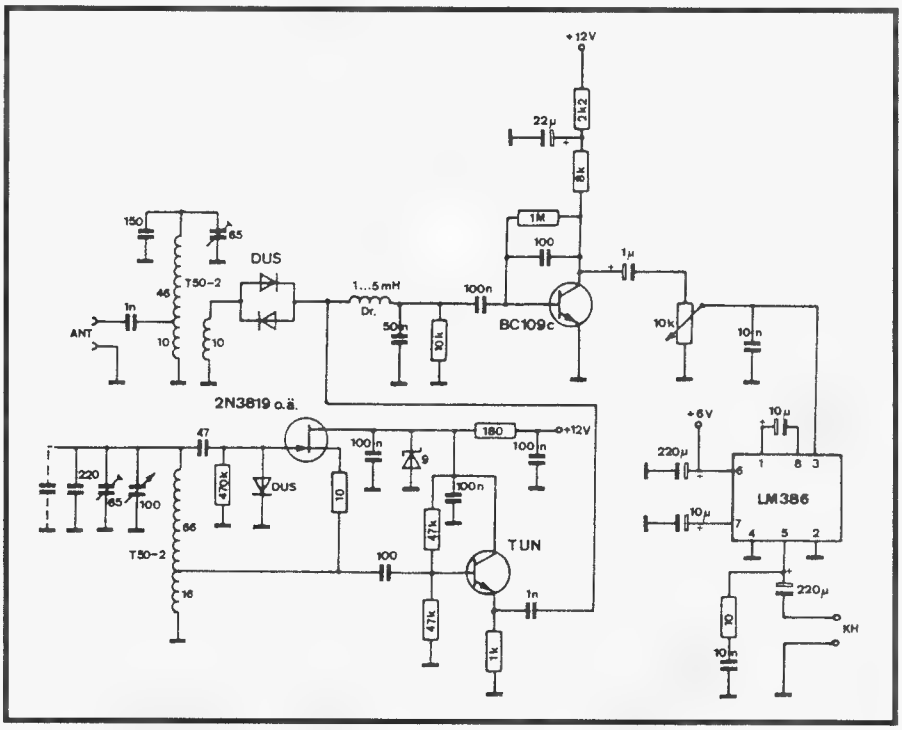

Fig 1 – Direct conversion receiver.

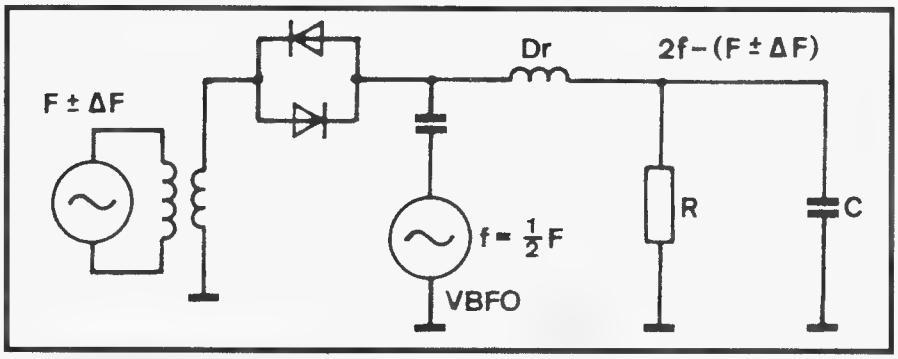

Fig 2 – RA3AAE mixer basic circuit.

issue. The author was Rudolf Burse DK2RS who used the mixer circuit originating from V Polyakov RA3AAE. This uses anti-parallel diodes driven by a VFO on half the frequency. The diodes used are general purpose diodes such as 1N914s.

The complete circuit is shown in Fig 1 and is for 80 or 160 metre operation. Alternatively, 40 and 30 metre operation could be achieved with minor changes. The components are all relatively uncritical and readily obtainable. The Amidon toroids are advertised by local suppliers. A basic circuit of the mixer operation is shown in Fig 2.

Diplexers

A diplexer allows two bands to be combined on to one cable. They can be used to connect a dual band aerial to two radios or to connect a radio with one output connector to two aerials. A design using coaxial cable stubs appeared in *RadCom*, March and April 1996 issues, from John Regnault G4SWX.

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(formerly A. J & J Coman Antennas)

6M std 6 ele 40 mm boom	$216
2M co/linear 2 5/8 7dbd	$ 97
12 ele 2M broad B/width	$135
160M vert top loaded	$327
6 M co/lin 6 dbd rad 4.NEW	$157
6 ele 6 M N.B.S 50 mm Boom	$310
Duo 10-15 M	$295
3 ele 15 M	$199
3 ele 20 M	$333
20 m log-yag array 11.5 dbd	$755
M B Vert NO TRAPS 10-80 M	$275
Tri band beam HB 35 C 5 ele	$690
40 M linear loaded 2 ele	$516
13-30 M logperiodic 7 ele 7.62 Boom all stainless/steel fittings	$730
70 cm beam 33 ele 19.9 Dbi	$228
23 cm slot fed 36 ele brass cons s/solder-assembled. 18 dbd	$170
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80 m rotatable dipole lin/loaded	CALL
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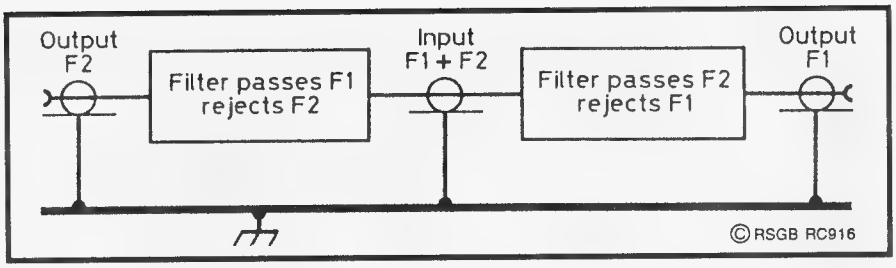


Fig 3 – Diplexer as two black boxes.

The basic diplexer block diagram is shown in Fig 3. The diplexer consists of a combination of filters which accept and reject the two frequencies. In this way the signals appear at one port from the two other ports without passing between the two other ports. The elements inside one of the filter blocks are shown in Fig 4. The open circuit stubs provide attenuation at F2 whilst the line sections provide isolation at F2 and matching at F1. The complete diplexer is shown in Fig 5.

However, while this configuration is fine for most uses there are some problems where F1 and F2 have a third

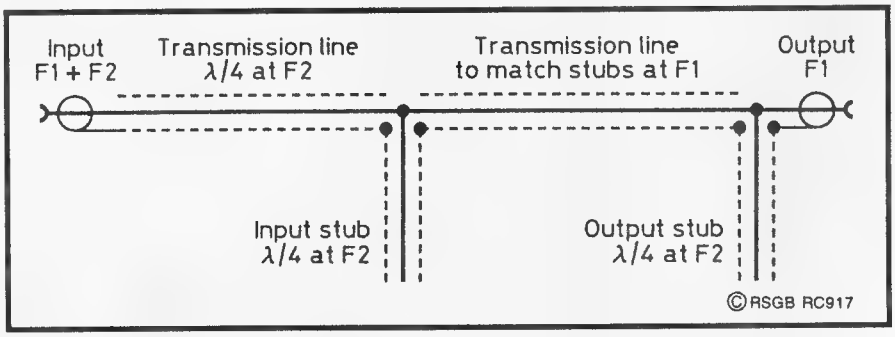


Fig 4 – Coaxial diplexer element.

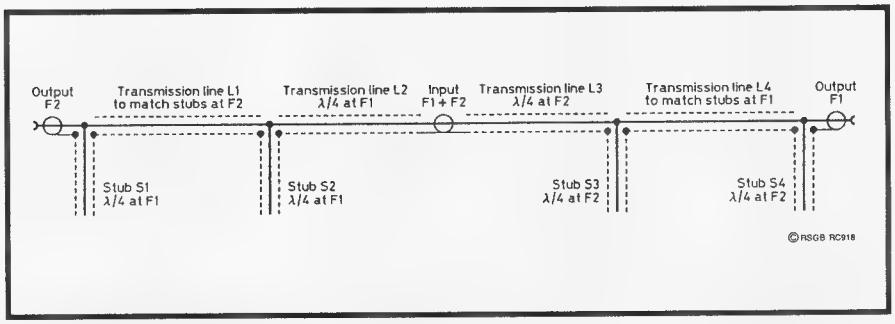


Fig 5 – All coaxial diplexer.

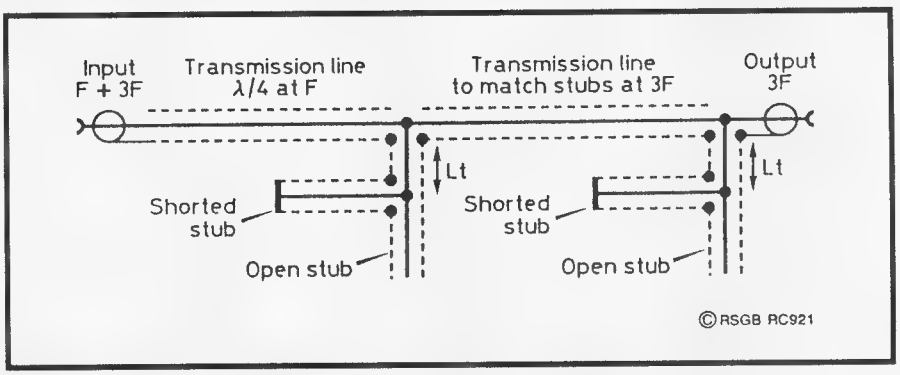


Fig 6 – Stub filter coaxial diplexer element to pass third harmonic.

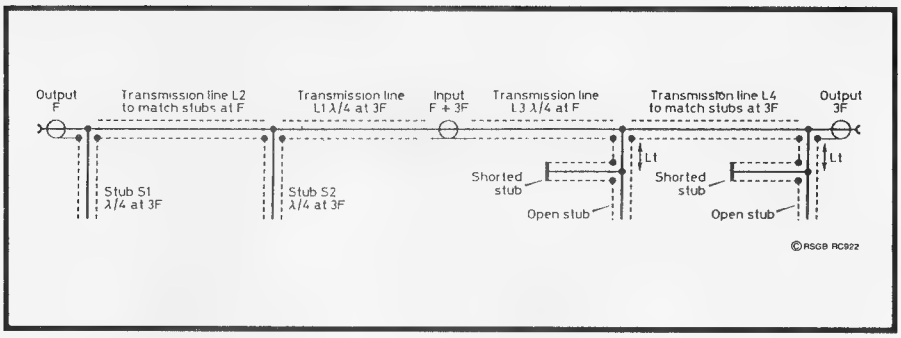


Fig 7 – Diplexer for third harmonically related bands.

harmonic relationship. This is the case for 144 MHz and 432 MHz, and for 50 MHz and 144 MHz, and a different basic accept/reject circuit is needed for the port operating at the harmonic frequency. 144 MHz is near enough to three times 50 MHz for this circuit. The answer is a slightly more complicated stub filter to pass the third harmonic signal source. This is shown in Fig 6.

The combined circuit useable for 50/144 MHz or 144/432 MHz diplexers is shown in Fig 7. The shorted stubs are connected at a tapping point on the open circuit stubs. The length of the open circuit stubs includes the length to the tapping point.

The lengths of cable for the diplexer are given in Table 2 for the 50/144 MHz design, and in Table 1 for the 144/432 MHz design. If you use connectors you should allow for the lengths of the connectors. The author, however, directly soldered the cables and stubs together except for the Tee connection between the two halves of the diplexer. This was to avoid inadvertent disconnections which might make the diplexer less effective. Remember, you will have a sensitive receiver front end on the other frequency port when transmitting. It is more accurate to trim the stubs to final length after construction. The soldered junctions can be protected by encapsulation.

The performance of the diplexer designs is shown in Figs 8, 9, 10, and 11. The cable used has a velocity factor of 0.66 and is RG213 or a close equivalent. RG58 could be used but is smaller and will result in increased losses and a lower power capability. RG213 will work at the 100 watt level.

Before use the diplexer should be checked for operation. Transmit into one port and see what appears at the other with a detector. All ports should be matched for these checks. There should be only a very small voltage at the other port with the full signal passing through to the common port.

C/o PO Box 2175, Caulfield Junction VIC 3161

ar

	S1 S2 L1	L2	L3	O/C stub	S/C stub	tapping pt Lt	L4
function	λ/4 @ 432	match@144	λ/4 @ 144	≠ λ/4@144	λ/2 @ 432	λ/4 @ 432	match@432
% λ @ 144	0.084	0.205	0.250	0.268	0.168	0.084	0.249
length	115mm	280mm	342mm	367mm	230mm	115mm	340mm

Table 1 – 144/432 MHz diplexer coax dimensions.

	S1 S2 L2	L1	L3	O/C stub	S/C stub	tapping pt Lt	L4
function	λ/4 @ 144	match@50	λ/4 @ 50	≠ λ/4@50	λ/2 @ 144	λ/4 @ 144	match@144
length	342mm	790mm	990mm	1052mm	690mm	342mm	1000mm

Table 2 – 50/144 MHz diplexer coax dimensions.

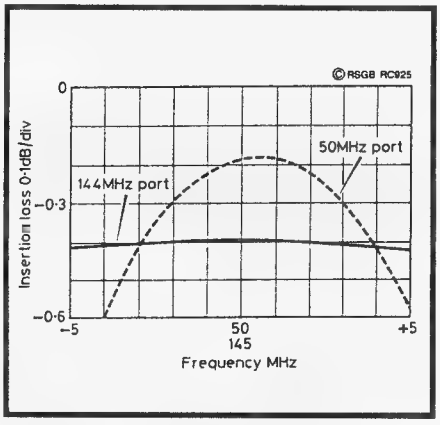


Fig 10 – 50/144 MHz diplexer passbands.

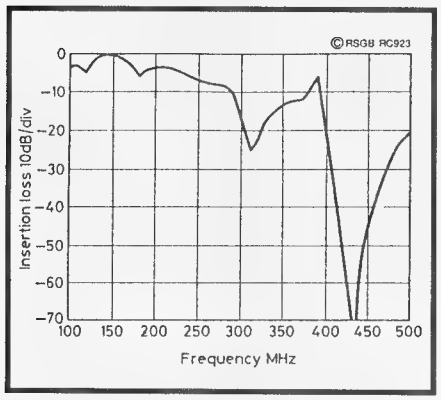


Fig 8 – 144/432 MHz diplexer – 144 MHz port.

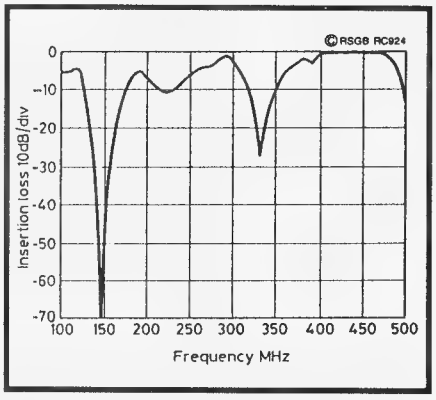


Fig 9 – 144/432 MHz diplexer – 432 MHz port.

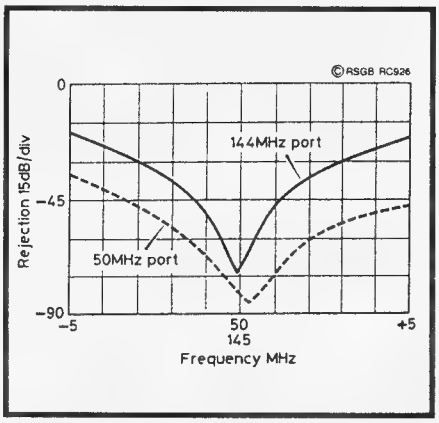
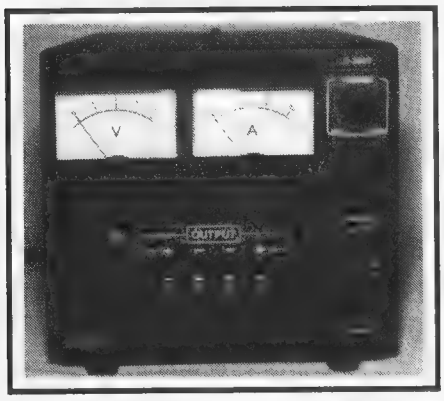


Fig 11 50/144 MHz diplexer stopbands.

■ Equipment Review

Dick Smith D-3800 Power Supply

*Reviewed by Ron Fisher VK3OM**



Dick Smith D-3800 power supply.

Up until now it's been an expensive job to obtain a 13.8 volt high current power supply to operate a 100 watt HF transceiver. Matching transceiver supplies these days are nudging the $700 mark and, in some cases, are not available at any price. I am sure that Dick Smith Electronics have been embarrassed many times by not being able to supply any sort of power supply to go with a new Yaesu transceiver. I guess they probably recommended the customer should purchase a VK Power Mate kit and build one up at a total cost of around $300 plus several hours work to put the whole thing together.

Well, things have now changed. As often happens these days, the Chinese have come to the rescue. At $299, how could you go past it?

Specifications -

Input : 230-240V AC 50Hz.
Rated DC output : Adjustable from 3v to 15v nominal.
DC current rating : Refer to chart below.
Cooling system : Convection and thermally-switched fan cooling.
Overload protection : - Dissipation limiting circuitry for pass transistors
- 30 amp instantaneous current limit circuitry.
- AC mains circuit breaker (3 amp)
- Transformer thermal fuse.
- Fused transformer auxiliary secondary winding.
Metering : DC volts - 0 to 15V nominal
DC amps - 0 to 30A nominal

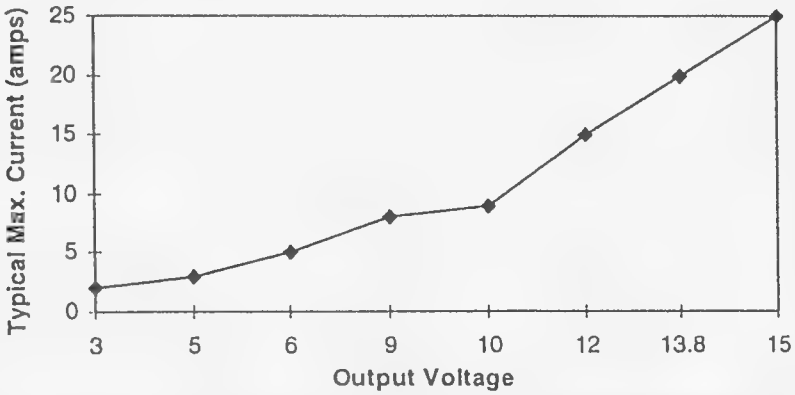


Figure 1 – Plot of output voltage against typical maximum current (reproduced from the supplied documentation).

D-3800 Power Supply Features and Facilities

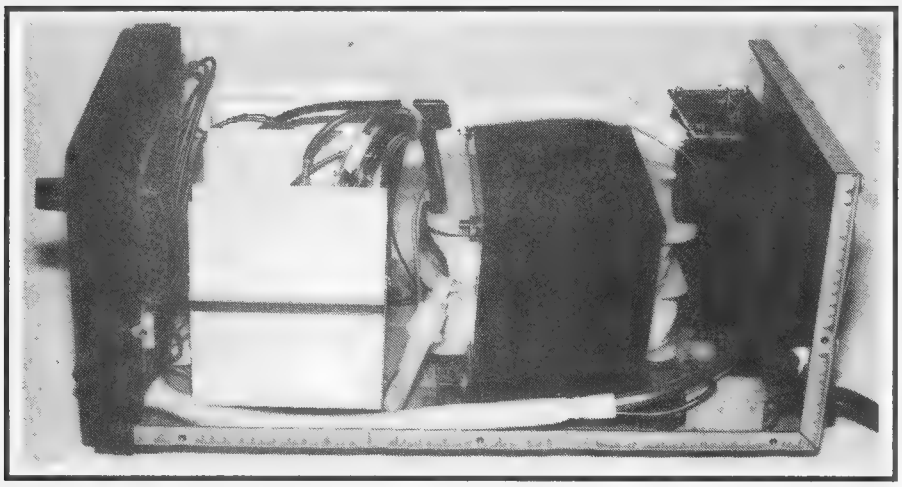
This supply gives you an output voltage variable from three to 15 volts with a maximum output of 25 amps. Actually, this needs to be qualified to some extent, because the 25 amps is only available at 15 volts. As the voltage goes down, so does the available current, so that by the time you get to three volts the maximum current available is down to about two amps (see Fig 1). At the usual 13.8 volts, the maximum continuous current is about 20 amps, but it will still handle peaks up to 25 amps that might be required by a 100 watts plus PEP output transceiver.

The supply is a solid transformer type with full electronic regulation. It is not a switched mode supply. It measures 320 mm deep, 150 mm high and 145 mm wide and weighs in at a hefty 8.6 kg. There are two separate meters to monitor both voltage (0 to 15 V nominal) and current (0 to 30 A nominal), and three sets of DC output terminals, one pair rated at the full output current and two rated at a maximum of three amps each. A thermally switched cooling fan, mounted on the rear panel, sucks air through the entire cabinet. Overload protection includes 30 amp instantaneous current limit circuitry, a three amp AC mains circuit breaker, a transformer thermal fuse and a fused transformer auxiliary secondary winding. The metal cabinet is finished in matt black and presents a very neat appearance.

D-3800 In Use

The operation of the power supply is, in general, quite straightforward. However, there are a few strange things that you need to know about. Unfortunately, the instruction sheet (a double sided A4 sheet only) appears to be a bit misleading.

Overload protection does not work the way the instructions say it should. It states, *"The front panel overload LED*



The D-3800 power supply with the cover removed. Note the hefty transformer, and the cooling fan on the rear panel.

will light if excessive current is drawn. When excessive current is drawn the output voltage of the power supply will automatically be reduced but will return to its pre-set voltage when the excessive load is removed". Well, not on our review power supply.

I found that if I drew current in excess of that rated for the voltage output, the voltage remained at that setting but the current limited down to about one amp. To restore full current it was necessary to remove the load completely (zero current) and then start again. At no time did the overload LED indicator come on.

However, in spite of this anomaly, the power supply worked well in practice. The output was very clean with extremely low ripple, even at a full 25 amps output; also the supply ran cool at all times.

Conclusion

There is no doubt that this power supply represents excellent value for money. I noted an advertisement in the USA magazine *QST* for what appears to be the same unit for $US249. This converts to about $AUS315, which makes the list price of $299 excellent value by any standards.

Perhaps Dick Smith Electronics could take a look at the supplied documentation and make some improvements. For instance, no circuit diagram is included.

Our review power supply was supplied to us by Dick Smith Electronics.

**24 Sugarloaf Road, Beaconsfield Upper VIC 3808*

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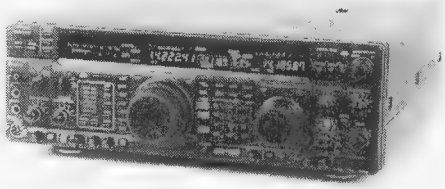

Well, here it is at last. July's **RADIO and COMMUNICATIONS** magazine reviews one of the most eagerly-awaited HF transceivers for years. What is it, and what makes it special? Read July's R&C to find out about the surprising DSP-equipped Yaesu FT-1000MP!
And don't miss your chance this month to WIN a mountain of radio gear!

Of course, that's just the start of our offerings for the amateur radio operator. Read these too...

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- Special receiver feature. Tom Sundstrom, W2XQ, looks at his 25 years of receiver evaluations.

Don't miss out — **RADIO and COMMUNICATIONS** is great reading for amateurs!
Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well. This month we have another record number of them. Yet more great bargains for you to drool over — but hurry, these rippers go *fast*!)

WIA FEDERAL 1995 ANNUAL REPORTS

Here are precis versions of the 1995 Annual Reports adopted by the Federal Council of the WIA at the 1996 Annual Federal Convention and approved for publication.

Federal President

Each year with New Year's Resolutions in mind, many look forward to promoting and progressing the aims of amateur radio. The questions then arise, what are their aims and how may they be implemented? Each Division is autonomous and builds up its strategies for its own purposes. Divisions differ vastly in their financial operations with Divisional components ranging from $14 to $25.25. There have been moves in the past, and some recently, to bring them into line along with changes to voting at the AGM.

The past year's report could be one of gloom and despair; instead, it should be seen as one of stability entering the WIA with the new structure of Directors and Councillors working to produce a stronger and more forward-looking organisation.

Executive

The new Directors took up their positions and quickly formed into a cohesive group. Allocations of portfolios spread the workload. Peter Naish was elected as Company Secretary, Lance Bickford took on AR and related areas, Rowland Bruce, Membership and Recruitment.

Peter Naish quickly associated himself with the financial situation determining the tasks and action necessary to arrest the decline in finances. His arrangement with the auditors to examine the Institute's affairs progressively through the year has effectively replaced the office of Secretary of the Institution as employed in the past.

Articles of Association

The book has finally been written. Each Division has been provided with a diskette copy of the Articles of Association, and the Memorandum of Association. The Institute thanks the VK3 Division for the effort; hopefully, this work will prove its worth with the need to alter anything a long way off in the future.

In January 1972 the WIA became a Company, Limited by Guarantee, or an Incorporated Company. The re-write or updating is the first major act of alteration to have taken place in the last twenty-three years. Of some interest is the noting of who was the first executive. Michael Owen, David Wardlaw, David Rankin and Bill Roper are all still active in amateur affairs. The other two names are Ken Pincott, who is still an active amateur, and George Pither, who passed away some years ago.

Membership

Declining Membership is, and has been, attributed to many causes. However, Divisions should now be actively pursuing recruitment, aided by the donation of an ICOM transceiver. This action was initiated by Roger Harrison, our Media Liaison Officer. It has been offered as a prize in the recruitment and retention drive.

Amateur Radio and Callbook

Amateur Radio continues to be the tangible benefit of membership. It has been published in its present format now for several years. With Lance Bickford now having the portfolio of oversighting its production, along with the reader's survey, some changes may be expected. The magazine consumes a large proportion of the income, and the members rightly expect a quality product. The call book is the yearly publication which has its share of production problems. This year, although not a production problem, the SMA records were only good up to April '95. Their computer system seems to have a dislike for the Institute's computer.

International

The WIA continues to be well represented overseas by David Wardlaw. His ongoing commitment to this work requires substantial absences from his professional work. Members should be grateful that he is prepared to do this necessary work, not only overseas, but he represents the Institute at the RCC meetings, and the SMA Liaison meetings also.

His workload eased slightly with his standing down from the Directorship of the Region 3, after many years. Many would envy his working knowledge of the international affairs concerning amateur radio.

SMA

A significant change took place during the year with the formation of the three man Liaison group. This group comprising David Wardlaw, Roger Harrison and myself, met with the SMA in Canberra on agreed dates. Agenda items were circulated well in advance of our meetings, and each meeting has been conducted in an atmosphere of conviviality. Most of the items on the agendas had supporting papers which aided discussions. SMA provided its personnel for the day's meeting with up to eight members providing expertise on the relevant area to which the agenda item referred. The two meetings in '95 covered over 33 items of business.

'95 will probably be best remembered for the anguish over licence fees. A tremendous effort by the amateurs of Australia saw the fees reduced from $71. Work is still in progress with an Exposure Draft being drafted and its subsequent submission to the Government.

The TLSs were seen in their draft form, and eventually the WIA agreed to their content. This is not to say that we accepted them as the final TLSs. We are aware that the future will see further fine-tuning of them. The new method of issuing regulations covering amateur operations does not need the Radcom Act to be changed, but the SMA may, by determination, alter the TLSs.

In December, Austel and the SMA were joined into a single identity. At the time of writing it is unknown how the amateurs will be affected by this merger.

Office and Staff

Through the year the office staff performed well, often under adverse conditions and criticism. With the coming and going of two Secretaries the associated duties with the position were carried by the Office Staff. When finally the position was taken over by Peter Naish, he found no fault in their work. The staff have worked well with Peter, the auditors commend their efforts, and the general overall functional ability of the office is very good.

Average monthly hours of attendance by Office staff has fallen from 146.5 hours in 1990 to 91 hours in 1995.

From the phone calls that are known or originate from the various sources, ie, Divisions and Directors, the Office Staff have to respond to many. They are resourceful enough to answer most questions. However, now with Directors with portfolios, it should be noted that perhaps these people should have the inquiry directed to them in the first place.

It has been a busy year. I've been involved in Federal activities now for some years, and cannot remember one which caused so much use of the President's "spare time". However, the work has been done, usually without delay. Perhaps the ensuing year will see the WIA more forward-looking, Divisional stability enhanced and, last but not least, membership increased.

Neil Penfold VK6NE
Federal President

ALARA

The Australian Ladies Amateur Radio Association Inc had a busy year with membership only slightly down on the previous year. Propagation is still a problem for the ALARA Contest participants. *Amateur Radio* magazine continues to provide ALARA with an opportunity to tell about our Association. ALARA became incorporated early in 1995 after a good deal of work by several members.

The 1996 ALARAMeet will be held in Perth on 28 and 29 September. Changes to the Committee are Bron Brown VK3DYF as Minute Secretary and Robyn Pye VK4RL as VK4 State Representative. Lunches continue to be held in various States.

ALARA 1995-1996 Committee

President	Christine Taylor VK5CTY
First Vice-Pres	Judy Atkins VK3AGC
Second Vice-Pres	Bev Clayton VK4NBC
Secretary	Bron Brown VK3DYF
Treasurer & Souvenir Custodian	Margaret Schwerin VK4AOE
Minute Secretary	Bron Brown VK3DYF
Publicity Officer	Sally Grattidge VK4SHE
Contest Manager	Marilyn Syme VK3DMS
Historian	Deb Matthews VK5JDM
Sponsorship Sec.	Gwen Tilson VK3DYL
Awards Custodian	Jessie Buchanan VK3VAN
Librarian	Kim Wilson VK3CYL
Editor	Dorothy Bishop VK2DDB

ALARA State Representatives

VK1/2	Dorothy Bishop VK2DDB
VK3	Bron Brown VK3DYF
VK4	Robyn Pye VK4RL
VK5	Meg Box VK4AOV
VK6	Bev Hebiton VK6DE
VK7	Helene Down VK7HD

Christine Taylor VK5CTY
President

AMSAT-Australia

The number of amateur satellite operators has stabilised during 1995 with the majority of operators being active on the 9600 baud digital packet radio satellites and, to a lesser extent, the 1200 baud PACSATs.

The voice/CW communication amateur satellites such as AMSAT-OSCAR-10 and -13, the Russian RS-series of satellites and Fuji-OSCAR-20's analogue transponders, still

continue to have a dedicated band of users, but one has to admit that there has been a mass exodus to the digital satellites.

Similarly, during 1995 the major activity on board the Russian Space Station, MIR has been packet radio with infrequent voice contacts being made on odd occasions.

In 1995, the Space Shuttle Amateur Radio Experiment (SAREX) activities have continued on a number of Space Shuttle missions both voice and packet radio giving many Australian amateur radio operators the chance to talk to the astronauts. Unfortunately, there have been no Australian schools involved in the SAREX school contacts this year, but at least one school in 1996 has already been scheduled for a prearranged contact. Australian schools are again invited to send a SASE to AMSAT-Australia C/o GPO Box 2141, Adelaide SA 5001 if they would like to have students contact astronauts on board future Shuttle SAREX missions carrying amateur radio. Such contacts can be either direct on 2 m or via a phone link to my QTH.

In 1995, no Australian representative attended any of the Phase IIID Experimenter's Meeting in Marburg, Germany. However, in May 1996 I will (with the support of the Wireless Institute of Australia) be attending the Phase IIID Orbit Analysis and Command Station Seminar in Marburg, Germany and then travelling to Orlando, Florida where the Phase IIID spacecraft is being built. Phase IIID is currently due to be launched in November 1996 or early in the first quarter of 1997.

During 1995, no new amateur satellites have been successfully launched, primarily due to either the failure of the launch vehicle or malfunctions in the primary payload. This has not dampened the enthusiasm of amateur satellite builders as both spacecraft are currently being rebuilt for later launches and six new amateur satellites are currently under construction throughout the world for launches in 1996, 1997 and 1998.

During 1995, AMSAT-OSCAR-13 has continued to favour the Southern Hemisphere stations. The Mode-S transponder has seen many Australian amateur radio operators become active on the 2.4 GHz band in preparation for the Phase IIID satellite. AMSAT-OSCAR-10 continues to provide excellent communication even though the on-board computer failed in 1986.

Throughout 1995 Bill Magnusson VK3JT has again continued to keep the readers of *Amateur Radio* up-to-date with the timely material he has provided in his AMSAT-Australia column. Bill's efforts continue to generate a steady trickle of interest in the Amateur Satellite Service. In 1995 I received over 500 mail items requesting general information on amateur satellites and satellite tracking software. Also, the AMSAT-Australia monthly Newsletter has increased its total number of subscribers (started in April 1985) to over 900 but, with the advent of Internet available to the general public, the newsletter has seen a decrease in the number of renewals.

Finally, I would like to thank the WIA for its continued support of the Amateur Satellite Service via the activities of AMSAT-Australia and ask that the 1996 Federal Convention recommend that the WIA continue to support AMSAT-Australia financially at the present level.

Graham Ratcliff
AMSAT-Australia National Coordinator

Awards

Achievements

Fully operative computer database incorporating all active WIA DXCC files. The bi-annual DXCC listings are derived from this database. An extremely good rapport with all awards recipients.

Problems

There has been a noticeable down-turn in applications for most awards. This is primarily caused by lack of communications due to the lack of propagation. The WAVKCA Award, however, maintains a degree of popularity. As a consequence, income from awards applications has dropped noticeably. There is also a lack of incoming information on DX Awards.

On some occasions I have had to "manufacture" information gleaned from old publications, to create entries for *Amateur Radio* magazine. Continued requests for information on "local" awards seems to have fallen on deaf ears.

Conclusions

Activity over all, has been pleasing, with one exception. I would like to see and experience more active association between the WIA co-ordinators and the WIA Executive.

John Kelleher
Awards Manager

Education

During 1995, the activities in Education were concentrated on the finalisation of the Question Banks.

Achievements

* completion of the AOCP/AOLCP bank to draft stage, its presentation to Council and submission to the SMA, and obtaining of publication quotes;
* completion of the Regulations Bank to draft stage and its submission to the SMA;
* production and submission of a draft Regulations syllabus;
* completion of sophisticated computer programs to allow production on demand of uniform standard theory and regulations examination papers and Morse code receiving tapes;
* ongoing negotiations with the SMA on Question Banks and syllabuses; and
* establishment of an Examinations Committee to assist the Federal Office in examination matters and oversee preparation of new examination materials from the new Question Banks.

Disappointments

* the extended time taken by the SMA to respond to submissions;
* the refusal of the Federal Council to publish the AOCP/AOLCP Bank in the form recommended by the Committee.

Intentions for 1996

* completion of the NAOCP Bank and all negotiations for approval of Question Bank and syllabus materials;
* release of all Question Banks to the public and to IARU societies;
* replacement of all existing Examination materials with new versions created from the Question Banks.

The Question Bank Committee will be disbanded early in 1996 at the members' request. I wish to express my most sincere appreciation for the time, effort and expertise which they have contributed over the last three years.

Brenda M Edmonds, VK3KT,
WIA Federal Education Co-ordinator

Federal Technical Advisory Committee (FTAC)

Membership and Organisation

There have been few changes to the membership of the FTAC panel. A current list of panel members is appended to this report. I would like to thank panel members for their efforts during the past year.

There are still difficulties in obtaining information, comments, or replies to outgoing mail, from some TACs. This has limited the ability of FTAC to fully carry out its consultative and co-ordination roles. Decisions have still been made but usually by means of setting a deadline for responses and assuming that silence is taken to mean assent. It is understood that everyone can only spend so much time on voluntary work for the WIA, but it would help if TACs could review the situation and, if possible, find ways of giving a higher priority to national liaison and co-ordination.

Activities and Achievements

During the past year, activities such as updating of the beacon and repeater data base, and processing of record claims, have continued. The Australian Amateur Band Plans have been revised and copies circulated to all Divisions for further distribution to members. For the first time in some years, the band plans have also been published in *Radio and Communications* magazine. A revised (easier to read) version of the band plans is being prepared for inclusion in the information package sent to amateur examination candidates. Information papers on permitted transmission modes, and a detailed paper setting out guidelines for the operation of unattended transmitters – including beacons and repeaters – have also been prepared and circulated.

A large amount of time was also spent during 1995 on preparing material relating to our new licence conditions. Much of this work has come to a satisfactory conclusion, although we are still waiting for the TLS for beacons and repeaters to be finalised.

Problems and Unfinished Business

There is continued need for strong support and publicity for the band plans. It is a matter of concern that some amateurs disregard the "gentlemen's agreements" simply because they are co-ordinated by the WIA. Consultation and communication in these areas would be much more effective if the WIA's image could be improved and its membership could be significantly increased.

The development of beacons has been retarded by licence fee increases, especially as beacons tend to take second place to repeaters when it comes to allocation of funds. Priorities in this area need to be reconsidered in view of the technical importance of beacons. Repeaters are also faced with problems of increased running costs, interference and overcrowding in some parts of the country. There is a need for a national review of repeaters, with special attention to their cost effectiveness and spectrum efficiency.

John Martin VK3KWA
Chairman FTAC

Historian

During 1995 material was received from ALARA, which was much appreciated. Some more information on members of the Wireless Reserve in the RAAF in 1945 was received, but it

is obvious that much of what should be in the collection has been lost in transfer from one Historian to the next. Any more data on this group will be most welcome. The work already started by Bob Cunningham VK3ML is being very useful.

In 1996 I intend to investigate the possibilities of:

a. Receiving a Community Heritage Grant from the National Library of Australia to assist with maintenance of archival material; and

b. Collaboration with a Tertiary institution on the management and potential of the collection.

John Edmonds VK3ATG/AFU
Federal Historian

WIA QSL Collection

Achievements

Selected parts of the collection continue to be exhibited at Radio Conventions. These seem to have created considerable interest amongst the friends of radio exhibitors as well as among amateurs themselves.

The year 1995 saw very close ties being established between myself and the Officer in Charge of the Austrian QSL collection. This collection, together with our own collection, are arguably the largest collections in the world. Considerable numbers of QSL cards are exchanged on a fortnightly basis.

Moves were made in 1995 to ensure the safe storage of valuable cards in that some steel filing cabinets were purchased.

Problems

The task of filing many thousands of QSL cards is particularly time- consuming. Although carried out most willingly, I feel that some effort must be made to recruit other helpers in the task of maintaining the collection, particularly as we look forward to the future.

I should like to see more use made of the collection by radio historians. Many articles in radio magazines could have been illustrated had a request for a photostat QSL been made.

Summary

Our QSL collection remains a source of first-hand historical information in that original documentation by early experimenters is being preserved as well as being a record over many years of the changes in the type of equipment used and the main events taking place throughout a country's history. More effort needs to be made, however, in bringing this valuable source to the attention of both radio amateurs and the public. It could possibly be used as part of a WIA membership/publicity drive.

Ken Matchett VK3TL
Honorary Curator

VK9/0 QSL Bureau

The past year has seen an increase in short term visits by overseas operators to the VK9 Call areas. This is, in itself, good for the Australian Tourist Industry. Unfortunately, the Bureau has major problems with the visits.

Since April 1995 the SMA has ceased supplying the monthly updates of the callsigns to the WIA. Since that time, cards coming into the bureau indicate that up to fifteen VK9 callsigns have been issued.

At the present time we have no record to check to see if the callsign being used is not a "SLIM".

An enquiry has been sent to the SMA requesting information on VK9/0 callsigns, and an indication was given that a charge may be made for the information. I hope that it is received as the Bureau is holding a number of direct QSL cards, and it would not enhance its reputation if the envelopes were to be returned marked "sorry no information available".

Neil Penfold
VK9/0 QSL Bureau Manager
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WIA News

SMA Proposes New Class Licences, Review of Apparatus Licence Fees

A new Class Licence covering radio-controlled models using equipment in the 29 MHz and 36 MHz bands has been proposed by the Spectrum Management Agency (SMA), with support for higher power transmitters and channel arrangements similar to those used by enthusiasts for some time.

Model radio-control transmitters in the 29 MHz and 36 MHz bands are presently covered under the SMA's Class Licence for Low Interference Potential Devices (RCL 1993/1, Item 29).

Lower-powered transmitters for radio-controlled toys are already provided for at 27 MHz, according to the SMA.

Transmitters having radiated powers ranging between 300 milliwatts and one watt effective radiated power (EIRP), for controlling sophisticated models, will be covered by the proposed Class Licence.

Channel usage arrangements intended for the safe flight of model aircraft using the 36 MHz band are to be specified in the proposed Class Licence.

Meanwhile, the SMA, in consultation with an industry working group from members of the Radiocommunications Consultative Council, is evaluating Apparatus Licence fees under the system introduced in April last year. Amateur Radio licence fees are not being considered as part of this review. As a result of decisions arising out of the working group's review, the SMA anticipates publishing a new edition of the Apparatus Licence Fee Schedule later this year. The last one, RIB 68A, was published in February this year.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of May 1996:

L21014	MR D E MACPHERSON
L21015	MR M J SCHOLES
L21016	MR G PENON
L21017	MR I C F GRAY
L21018	MR M A JAMES
L21019	MR D WOODHEAD
L30931	MR R CAMPBELL-DRURY
L30932	MR T ILES
L30934	MR J CRERAR
L50344	MR R SACHSE
L50345	MR G D WILLIAMS
L60347	MR M J DIBDEN
LA0CX	MR U HEUBERGER
VK1PV	MR P VENTATRAMAN
VK2AEJ	MR O L HOLMWOOD
VK2AJ	MR R J BAILEY
VK2ARU	MR P K FROST
VK2BGP	MR G I POST
VK2BMC	MR W P JOHNSON
VK2DGS	MR G H SANDERS
VK2FLT	MR J J TREGILLGAS
VK2HKA	MR K A WICKS
VK2LAL	L HOGAN
VK2TAZ	MR P ROGENCAMP
VK2TIJ	MR P NGUYEN
VK2UAI	MR A R IRVINE
VK2UK	MR E KLEIN
VK3DBO	MR L J SNOOK
VK3DJM	MR J H MILLER
VK3EJP	MR J D PERKINS
VK3FES	MR G BAKER
VK3FFQ	MR L ROCK
VK3JGN	MR G MANN
VK5XPS	MR P A SMITH
VK5ZIL	MR S F WARREN
VK6AGA	MR J M GRIBBLE
VK6AKJ	MR K J WALDRON
VK6APG	MR P G SAFE
VK6BEB	MR A A SMITH
VK6JAY	MR L LASMANA
VK6KCH	MR C R HILL
VK6KQ	MR K R BRYNE
VK6MBG	MR A MARTIN
VK6MG	MR L P MCGUIRE
VK6OQ	MR S R WHITE
VK6PJB	MR P J BROWNER
VK6WU	MR R G JAESCHKE
VK6YCP	MR A L ROBINSON
VK6ZJ	MR D D KINNERSLEY
VK7HCR	MR C J READING
ZL1UJF	MR J FULLER

The WIA also bids a warm welcome to the following new VK4 Division members:

Paul Antuar	VK4KBD
Robert Murton	VK4ZOW
Martin Saunders	VK4HMJ
Roystan Colebourne	VK4NEC
Robert Benetti	VK2ZEB
Robert Cumming	VK4YBN
Roy Milner	L40373
FT Van Dore	VK4YAM

■ Computers

A Radio Amateur's Guide to the World Wide Web

Richard Murnane VK2SKY explains the Internet and how it is a useful adjunct to amateur radio.*

Introduction

Anyone who has listened to WIA Divisional broadcasts (in VK1 and VK2, at least) will have heard, and perhaps been perplexed by, the announcer reading out torturous cryptic codes, which invariably begin, *"h-t-t-p-dot-slash-slash..."* What are these tongue-tanglers, what do they mean, and how do they affect us radio amateurs? I hope to answer these and other questions in this article.

In the past two or three years, "the Internet" has become a beast of almost mythic proportions, growing in popularity (with some 10 million users today) and sophistication as it leaves the domain of the hacker and ponders whether it will become the next television.

Ten years ago, when "hacker" was a label one could wear with pride, the Internet was populated by such people, concentrated around universities and major computer companies. They were people for whom the arcane world of the Unix operating system, the dreaded "line eater" bug, and the apocryphal "kgbvax@kremlin.ussr" were everyday phenomena that could not be readily explained to ordinary mortals.

Rather like the radio amateurs of earlier generations.

Now, much as CB radio and cellular phones have made wireless communications into appliances for the "great unwashed", new computer software is turning the mysterious Internet into the so-called "Information Superhighway". "The Internet" is a cover-all term for a number of computer networks, all of which are linked to each other, forming one huge "net" that spans virtually the entire globe. The universities and large computer companies still form most of the "backbone" of the net but, in recent years, smaller companies and independent service providers have made the net accessible to an ever-growing number of people around the world (current estimates put the growth rate at about 10% per *month* – imagine that happening in amateur radio!)

With the increased net population has come a huge broadening in the kind of information to be found there. Any subject you can imagine (and probably a few you couldn't!) can be found "out there". This information forms an immensely valuable resource, for research, education, entertainment, etc. And, of course, some of that information is of particular interest to radio amateurs. The trick is finding it...

Duke of URL?

Which brings us back to that "h-t-t-p-colon-slash-slash" stuff. If all this great information is out there, how on earth do you find it? Well, every piece of information on the net is stored on a computer somewhere, in the form of a data file. Every such piece of information is termed a resource, and the key to locating that resource is called, not surprisingly, a *Uniform Resource Locator,* or *URL.* This is sometimes pronounced "earl", or just spelled out.

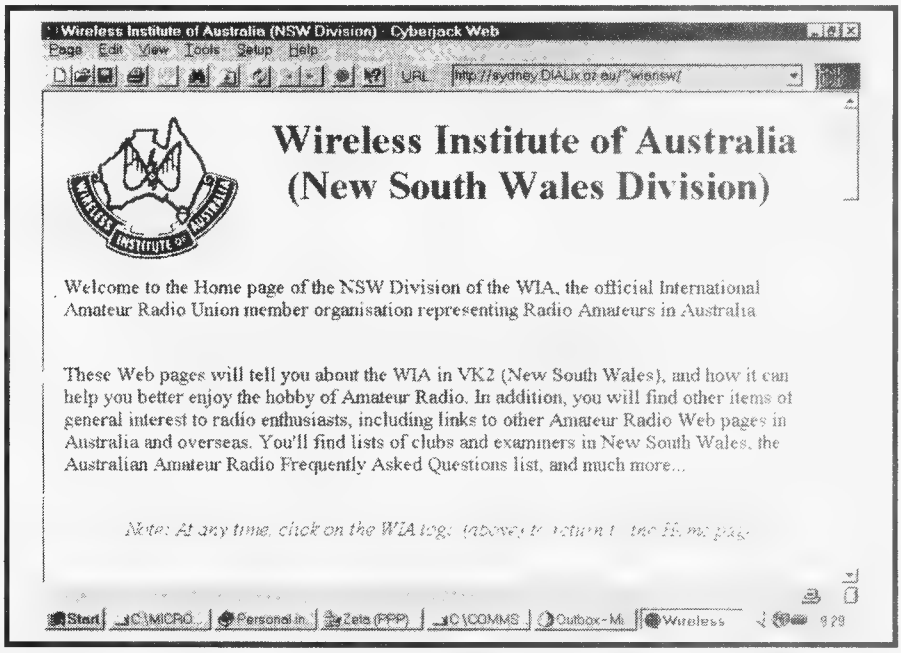
As its name suggests, a Uniform Resource Locator takes the same form, no matter what kind of resource it refers to. A URL has three parts:

a. the first part indicates how the resource is to be transferred between your computer and the one where it's stored;

b. the second indicates the unique identity of the computer where the resource is located; and

c. the third part indicates the name of the resource.

So, a typical URL is: *http://sydney.dialix.oz.au/~wiansw/index.html* which



The computer monitor screen while accessing the VK2 Division's World Wide Web page.

is the World Wide Web page (or site) of the WIA, NSW Division (more about the Web later.)

"http:" means that the resource will be transferred to your computer using the *Hyper Text Transfer Protocol.* Other possibilities are *"ftp:"* (File Transfer Protocol), another popular means of sending computer files around the net, *"mailto:"*, a means of sending electronic mail (like packet radio messages), and *"news:"* which refers to Usenet News.

Don't worry about all these terms for now: what matters is that both computers agree on how the information is to be passed between them.

"//sydney.dialix.oz.au/~wiansw" is the location of the resource: *"//sydney.dialix.oz.au/"* is the name by which the computer is known to every computer on the net. *"~wiansw"* indicates the name of the account holder on that computer (many computers on the net are shared by a number of users, so each has its own unique user name.)

Finally, *"index.html"* is the name of the file containing the information. This can sometimes be omitted, and the "Web server" program on the computer knows which file to send back if none is specified.

For comparison, the URL for a typical electronic mail address on the Web (mine) is: *mailto:richardm@zeta.org.au*

The order is slightly different here: *"mailto:"* means "send electronic mail", my user name is *"richardm"*, and my "home bbs", to borrow a packet radio term, is *zeta.org.au.*

Browsing Around...

Knowing the URL for a resource is all well and good, but how do you use it? Well, the first thing you need is a piece of software called a "Web browser". This program takes the URL, retrieves the resource, and displays it on your computer screen. The information can take many forms, such as printed text, images, movie clips, sound, and heaven knows what else in the future. Internet Service Providers normally provide their customers with the necessary software, so I won't cover the details of configuring such software (sadly, this is one area where the Internet isn't quite suitable for "appliance operators" yet, but it's nearly there).

Most of the information that you will find on Internet is in the form of hypertext, which lets you link resources together. For example, the VK2 Division Web page has links to other radio organisations like the ARRL and RSGB, links to government agencies like IPS Radio and Space Services, and the SMA, links to radio clubs around NSW and overseas, and many more. While reading the VK2 Web page, you can simply point your mouse to some text that looks like a "hot link" (such text is usually underlined and usually a different colour to the rest of the text), click the mouse button, and a few moments later you're looking at the linked Web page. Click on the "Back" button, and you return to VK2.

Hot links work a bit like the transporter in Star Trek. Press a button and you can go wherever the link has programmed you to go. Now, if you were to draw on a piece of paper a dot representing every Web page, then draw lines representing links between each page, you'd soon have something that looked like a huge spider's web, which is where the World Wide Web gets its name.

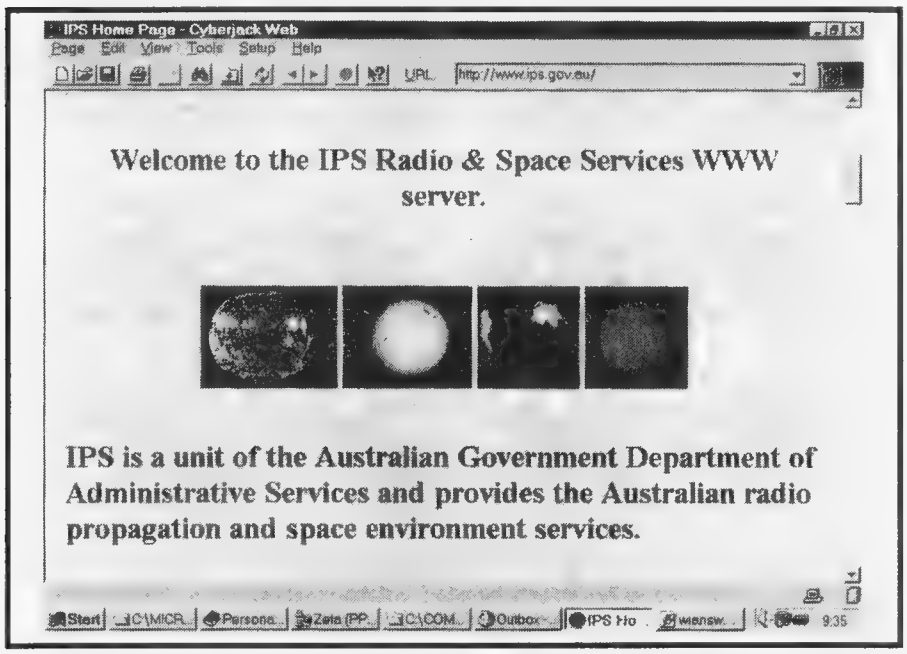
The Web has been described as a bookshop, where the books are scattered all over the place: when you look for a particular book, you can stumble across many more that have nothing to do with what you originally wanted, but which are interesting, nevertheless. Which leads us to an interesting question. If you want some information, and you don't happen to have URL to take you straight there, how do you find it?

Seek and You Shall Find

Fortunately, there are Web sites whose sole function in life is to seek out information elsewhere on the Web. These are known as *search engines.* These engines have a special part, called a web robot that spends its day "reading" web pages, storing key words and phrases from those pages, and storing them for later use. Then, when you come along and ask for a search based on, say, "amateur radio" and "australia", the search engine provides you with a list of matching URLs. Just click on one and away you go!

Interesting Sites

WIA state Divisions in VK1, VK2, and VK5/8 established World Wide Web sites last year, and these have proved very popular among Internet users, both in Australia and overseas (the VK2 Web page gets "visits" about 80 times every day). A Federal Web page was recently proposed at a recent Federal convention, so hopefully this will be up and running soon, offering a single reference point from which all other information about



The computer monitor screen while accessing the IPS World Wide Web server.

amateur radio in Australia may be accessed. The VK4 Division is currently developing a Web page, and we hope that VK3, VK6, and VK7 will join in the fun as well.

The Future

A few issues still need to be addressed before the net becomes a mass communication medium on the scale of radio and television:

Cost: Currently, to access the net, you need a computer and a high speed modem, an investment which can easily exceed the cost of a new HF rig. However, a dedicated "Internet box" was recently announced, costing around $US500; we can expect the price of such devices to fall dramatically as they become mass-market appliances.

Delivery: Today, Internet access is via telephone lines, the use of which may soon incur timed charges even for local calls. Pay TV providers are starting to look for other ways of filling their bandwidth delivery capacity by adding extra service, which is likely to include Net access; the extra cost on top of pay TV services may be minimal.

Addictions: A recent phenomenon reported in the United States has been "net addiction", where people interact with the world only via their computers, at the expense of dealing with people IRL ("In Real Life"). However, this might not be such an issue for those of us who spend prolonged periods in our shacks away from spouse and family!

Another concern that has been raised is the type of information that is available on the net. With a population soon to be in the tens of millions, there are bound to be clashes over what material is acceptable for publication on the net, especially with children having an increasing presence on the net. In the future, information on the net may carry a rating similar to that used with films, video and television, and users will be able to install "guardian" software to screen out unwanted types of material. Until that becomes a reality, perhaps the best policy for parents is to take an active interest in their children's use of the net, showing them how to use the wealth of information for positive purposes in their lives.

Returning to amateur-specifics, an increasingly prominent issue is that of the use of Internet-to-packet gateways. Current legislation prohibits traffic from non-amateurs from being sent on the amateur bands; however, this limits the use of the gateways by licensed amateurs who wish to use Internet as a faster alternative to message forwarding via the ether. In future, experimenters are likely to devise ways to make packet-Internet forwarding available to licensed amateurs, despite SMA regulations to the contrary. If done proficiently, nobody is likely to be any the wiser, and the SMA is unlikely to take action while it continues to ignore more serious breaches of the Radiocommunications Act.

But is it Amateur Radio?

Well, no. Some have expressed concern that we're all moving away from "real" amateur radio and towards Internet, to the detriment of our hobby. While Internet seems to have an attraction for youngsters that is missing from amateur radio, I think we must face up to a few demographic facts. The amateur population is aging, while the Internet community is growing ever younger; if we pretend that it doesn't exist, we will probably move inexorably into an evolutionary corner, and eventually die out. On the other hand, Internet offers a unique opportunity to expose a large number of people of all ages to the magic of our hobby. In the meantime, the communication resources available on the net are just too vast to ignore. Be careful though: you might never return to packet radio!

*PO Box R153, Royal Exchange, Sydney NSW 2000
Packet: VK2SKY@VK2OP.NSW.AUS.OC
Internet: richardm@zeta.org.au

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■ Foxhunting

Lost in Ballarat

The Triumph of Sheer Mindless Stubbornness Over Realism, Experience and Reason

*as told by Alex Edmonds VK3BQN**

It was late in the afternoon, cold, the sky was grey. We were doing something about a fourteenth circuit around an area of about three city blocks when the fox called up and said "time". He was giving up and going home.

We had just set a new record. We were the only team competing in the event, and we'd lost.

To understand how this was possible, you have to know that we had shown up in Ballarat for the Ballarat group convention on SATURDAY.

Few of the serious Melbourne Fox-Hunting teams show up on the Saturday for a single hunt, as that would mean either the cost of staying overnight or a lot of driving to take part in one event. For this reason, (or perhaps because they're replacing a clutch or, in extreme cases, a vehicle) the turnout for the Saturday afternoon events has been low each time we've been there.

As a result, a couple of years ago there were four teams in the Saturday hunt. Us and three Ballarat teams (yes, we came fourth. Shut up!).

This year, none of the locals entered. We rolled up at the gate, mostly set up, and said "when does the fox-hunt start". The people in the cars at the gate didn't really seem to know what was going on, so we drove into the ground and started asking people.

The answer was, basically, "whenever you want; you're the only team entering".

At first sight, this was encouraging. No competition. It meant that we actually stood a genuine chance. Foolish thought.

They decided to actually make us hunt. It was a two stage hunt on two metres. We eventually found the first stage, but we never did find the second. Partly this was due to poor preparation (no sniffer) and partly due to something I have never experienced before on a fox hunt – TOO MUCH signal.

Reception was full scale on the receiver meter WITH NO ANTENNA ATTACHED.

So much for radios in plastic boxes.

We circled the area, explored ALMOST every way in to where the fox actually was and must have been, at one stage, within roughly five metres of him (possibly less – we later worked out he must have been just the other side of a brick wall that we'd driven up to, but there was no way through from where we were).

After we'd been circling for 40 minutes or so, he decided we weren't ever going to find him (probably true, but still insulting) and called the event off.

FOX 1, HUNTERS 0.

In mitigation, I point out that there were only two of us. That meant no map-reader/navigator, a frequently vital team member (also, no decent maps).

Next morning was a sniffer hunt that I would have won, had I not had my fear of spiders get hold of me when I knew where it must be, under a large box, behind some bricks. Another hunter reached in past me and grabbed the transmitter (I should have clobbered him from behind before the judges could see it).

There followed another fox-hunt, and this time the Melbourne teams had shown up so there were five cars lined up. We had very carefully parked at the front of the starting line-up. We knew we weren't going to win, but we could cause some irritation amongst the ones who stood a chance. Old rule of fox-hunting – an annoyed fox-hunter is a less efficient fox-hunter.

In a burst of inspiration, BARG had come up with a concept that I've never heard of before. A multi-frequency, multi-stage, simultaneous hunt.

Transmitters running on four different bands from four different locations, with the contestants free to choose which order they would hunt them in.

Transmitters were running on 80 metres, 10 metres, two metres and 70 cm.

We began by following the only signal we could actually hear (after a little driving around), the 80 metre one. Having got somewhere near that fox I promptly lost all sense of direction, gave up on it and tried the other frequencies. 70 cm was nice and strong, so we followed it and actually found it. We then tried for the two metre fox, but time ran out on us (we have always been better on VHF hunts than on HF.)

Don't ask me how they scored that event. Frankly, I don't want to know.

The last hunt was a two legged two metre hunt in which we distinguished ourselves by finding the first leg and promptly forgetting that there was a second leg to be found. Neither of us quite understand this, except that it was possibly a simultaneous subconscious message regarding our abilities as hunters.

Results of the weekend? We were given "second place" in the Saturday hunt.

I'm not sure, but I think that was an insult. (My personal ability as a beam-swinger has never been in doubt. Whenever faced with a difficult choice I have always immediately taken stock of the situation, made a calm, rational decision, taken two Valium and collapsed in a whimpering heap. This hasn't helped our record any.)

Just to highlight the triumph, the shutter on my camera broke at some stage over the weekend, so that when I rewound the film to take it out, the whole film was massively over-exposed (this explains the absence of photographs accompanying this article).

As a team we have been going to the Mt Gambier convention to hunt every year for more than ten years, with occasional visits to Ballarat and other conventions.

So, have we ever won a hunt? Yes, surprisingly enough.

Once.

Many years ago, there was a single stage two metre night fox-hunt at Mt Gambier which ended earlier than expected. As a result, the fox decided to have one more unscheduled hunt. We won the unscheduled hunt. It was the only event ever run at Mt Gambier that there was no prize for.

Why do we keep trying?

I don't know. My psychiatrist won't tell me.

**PO Box 445, Blackburn VIC 3130*

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■ Antennas

A Rotary Clothes Hoist 20 Metre Ground Plane Antenna

Neville Chivers VK2YO explains how to use your rotary clothesline as part of a DX antenna*

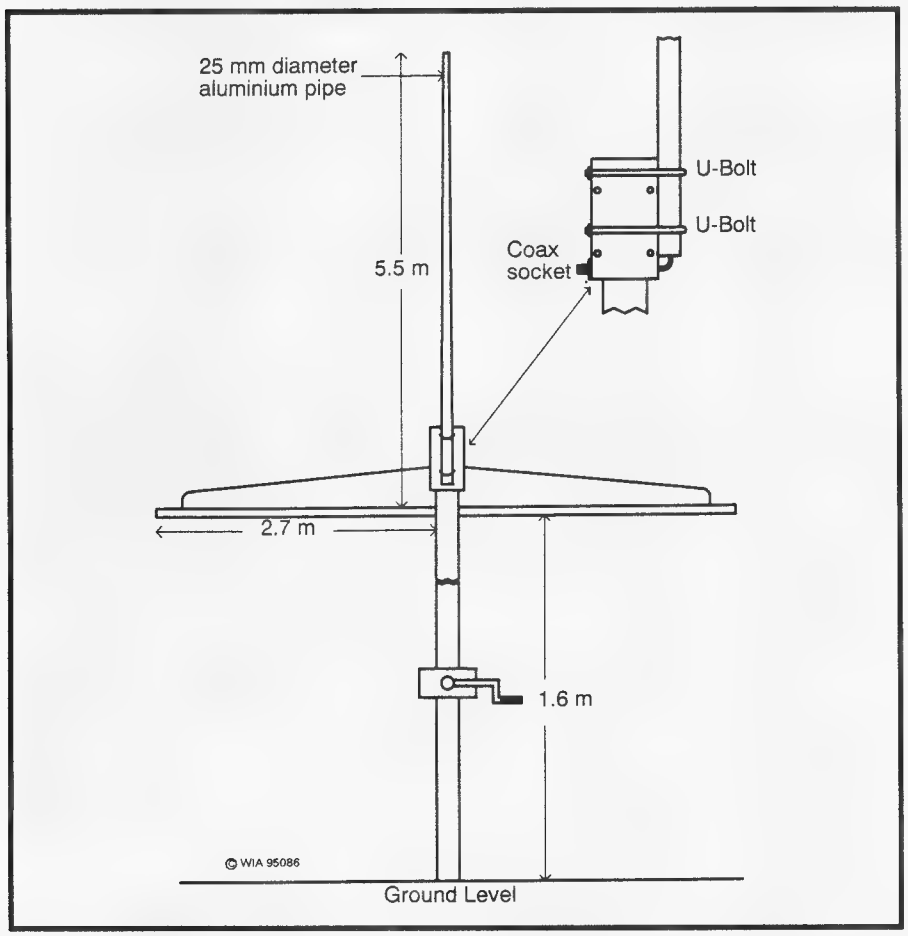

Figure 1 - Rotary clothes hoist 20 metre ground plane antenna (not drawn to scale). U-Bolts clamp the vertical antenna pipe to the wood block, insulating the pipe from the clothes hoist. U-Bolts are also used to clamp the wood block to the clothes line, and the coax socket braid connects under the nearest such U-Bolt.

The Problem

I was recently asked to advise a local amateur about possible antenna choices. His block of land slopes steeply down from the street to a rocky ledge upon which the house sits and then, at the rear of the house, drops away sharply to the creek at the back of the block. Upon the small amount of ground at the rear of the house stood a rotary clothes line. There was nowhere to locate a dipole or to run out an end fed wire.

The Solution

A vertical antenna was the only way to go. However, mounting a vertical antenna presented some difficulty. The tiled roof was of gable construction and was ruled out. The only mount available was the rotary clothes hoist which, it seemed, would also provide a ground plane or counterpoise for a quarter wave radiator even though the dimensions of the clothes hoist are somewhat less than a full quarter wave ground plane for 20 metres.

Construction and Adjustment

The antenna dimensions and construction are shown in Fig 1. The dimensions should only be taken as a guide as there are many variables involved. With the dimensions given the antenna dipped at 14.2 MHz and the SWR was 1.5:1 at the band edges. The SWR was measured using a Midland dual meter SWR bridge. At 14.2 MHz the radiation resistance was 65 ohms so that 50 or 75 ohm coax could be used. With the antenna connected to my TS680S transceiver full output was obtained between 14 and 14.3 MHz.

Performance

The antenna performs very well. It is as good as a horizontal wire antenna into Europe, Alaska, and New Zealand and is sometimes up to an S point better. Using an antenna tuner it loads up well on 15 metres and on 10 metres but loads poorly on 17 metres or 12 metres.

All measurements were made with the clothesline wound down which is its locked position. Raising the clothesline resulted in no discernible change in operation of the antenna. However, raising the clothesline allows it to freewheel in the breeze when drying clothes. This could lead to the coaxial cable being broken. As 20 metre DX operation is not usually a daytime pursuit the coaxial cable is left disconnected when clothes are drying.

Just in case anyone is wondering, there is no change in performance if clothes are on the line during operation.

Technical Editor's Note

Care should be taken when using this antenna. The clothesline could be hot with RF during operation and the RF radiation may be of concern to anyone using the clothesline. If the operator of the transmitter is also the user of the clothesline this is not a concern, but other household members should be warned to stay clear during operation of the transmitter.

** 51 Meeks Crescent, Faulconbridge NSW 2776*

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ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

Annual General Meeting – 27 May

After wildly fluctuating conditions on 80 m, the night of 27 May was surprisingly quiet and most members could hear most of the meeting most of the time. Present were Christine VK5CTY (net control), Bron VK3DYF, Sally VK4SHE, Robyn VK4RL, Poppy VK6YF, Margaret VK4AOE, Jean VK5TSX, Tina VK5TMC, Marilyn VK3DMS, Gwen VK3DYL, Pat VK3OZ, Judy VK3AGC, Bev VK6DE, Bev VK4NBC, Mary VK3FMC, Robyn VK3ENX and Maria VK5BMT/8 in Darwin.

All nominated office bearers were elected unopposed as follows:

Executive: President, Christine VK5CTY; Snr Vice-President, Judy VK3AGC; Jnr Vice President, Bev VK4NBC; Secretary, Tina VK5TMC; Treasurer/Souvenir Custodian, Margaret VK4AOE; Minute Secretary, vacant; Publicity Officer, Sally VK4SHE; and Editor, Dorothy VK2DDB.

Office Bearers: Historian, Deb VK5DEB; Awards Custodian, Jessie VK3VAN; Contest Manager, Marilyn VK3DMS; Sponsorship Secretary, Gwen VK3DYL; and Librarian, Kim VK3CYL.

State Representatives: VK1/2, Dorothy VK2DDB; VK3, Bron VK3DYF; VK4, Robyn VK4RL; VK5/8, Jean VK5TSX; VK6, Bev VK6DE; and VK7, Helene VK7HD.

Thanks to all outgoing and continuing officers, and a special welcome to Tina and Jean. We have all heard much about you and it is great to have you on the air and on the committee. Full names, addresses and phone numbers will be in the Newsletter.

Situation Vacant

Bron VK3DYF would like to retire, and certainly deserves to, after many years devoted to ALARA committee work. She has agreed to continue as minute secretary for the time being but, PLEASE, will someone come forward to take on this job. All you need is to be able to hear reasonably well at the meetings on 80 m. The minutes are not long, usually about one page. The meetings do not run at high speed and all on air will do everything they can to make sure you have all the information you require, and give LOTS and LOTS of help to any newcomer to the job. Don't be shy. This is a nice little job for someone who would like to help but perhaps feels they do not have the time or skills to take one of the more demanding positions.

New Addition

Added to the list of ALARA souvenirs is a magnetic bookmark, made by Tina VK5TMC, and ideal to send oversees as it is easy to post.

Packeteers

Quite a few YLs are finding packet a useful way of passing accurate information in spite of the inevitable problems which seem to be part of high technology. Please remember to keep the secretary up to date with the state of your packet station.

Margaret VK4AOE informs us that ALARA can now be found in the Special Interest pages of Packet Radio Teletext thanks to Graham VK4BB and Neil VK4NF.

New Member

Patsy KA7MZZ, sponsored by Sally VK4SHE. Patsy put out a CQ YL on packet which found its way to Townsville. Patsy lives in Oregon and is trying to contact YLs via packet in as many countries as possible.

New Subscriber

The Girl Guide Association in South Australia.

ALARAMeet Again

Please contact Bev VK6DE as soon as possible if you are going. She needs to know numbers for catering and bus tours, etc.

Wanderers

Judy VK3AGC was recently heard on the VK4YL net, from the QTH of Bev VK4NBC, while taking a well-deserved holiday in sunny Queensland. Maria VK5BMT called into the AGM from Darwin. On her way to Perth?

Contest Query

If a club is a member of ALARA and takes part in the contest, how does it score? As a club or as a member?

It has been resolved that a club or group taking part in the ALARA contest will score as a club, even if those involved are members. A club, or group as such, can be a subscriber (to the Newsletter) but not a full voting member.

Caught on the Net

Christine has often remarked on the variety of subjects discussed on Monday nights. A new one a few weeks ago was the problems of purchasing items of intimate apparel, namely supportive undergarments of an uplifting nature, faced by members of the fairer sex whose vital statistics are amplitude modulated.

VK3 Lunch

Present at the May luncheon were Elizabeth VK3NEP, Gwen VK3DYL, Jessie VK3VAN, and Mavis VK3KS. Bron VK3DYF arrived with suitcase, just off the train from Wangaratta where she had been visiting her two new granddaughters Kate and Emma, and their big brother Jason. As the girls were only three days old, Bron decided to wait a while before introducing them to amateur radio. Elizabeth is hoping to be on the air and on packet soon.

Long Path

Christine often sends me a report on the Monday night net which can be hard to copy from the far north. In May *Amateur Radio* it was mentioned that Bobbie VK2PXS had been absent from the net due to antenna problems. Her son, Frank VK2AKG, read the column and rushed over to fix the antenna (one of the traps had gone open circuit). Just goes to show the power of the press.

Night Train

Dot VK2DDB and OM Peter belong to the Hornsby Model Engineering Club and recently went to a night run. The five-inch gauge steam trains have front and rear lights, and the smoke and sparks from the funnels look like fireworks. Great fun; and don't model engineers get cross when you ask about their "toy" trains?

Still in the Dark

Sally VK4SHE recently went night orienteering in the bush and found it an interesting experience. Unless some younger and fitter YLs turn up soon, SHE is competing in the second IARU Region 3 ARDF Championships taking place in Townsville about the time you read this. In depth report in next issue!

**C/o PO Woodstock, QLD 4816*

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Remember to leave a three second break between overs when using a repeater

Awards

*John Kelleher VK3DP - Federal Awards Manager**

During the past few months, I have been listening to an earnest group of amateurs who have created what is now known as The Downunder County Hunter's Net on 14255 kHz. Their enthusiasm rubbed off on me, so I joined in. To date, I have increased my tally of US counties by another 12.

This Net operates on the above frequency, beginning at 0330 UTC, during the period of the USA weekends, ie Saturday, Sunday and Monday local. The main instigators are VK3ATZ and VK5AQZ, who welcome callers from all over Oceania to participate. I fully support this initiative, and to help in this cause, I include information taken from *The USA Counties Award Record Book.*

The United States of America Counties Award

The United States of America Counties Award, sponsored by CQ, is issued for CONFIRMED contacts with specified numbers of US counties under rules and conditions hereafter stated (as of 1 April 1983).

A. Awards Classes

The USA-CA is issued in seven different classes, each a separate achievement as endorsed on the basic certificate by use of special seals for higher class. Also, special endorsements will be made for all one-band or -mode operations, subject to the rules.

Class	Counties Req'd	States Req'd
USA-500	500	Any
USA-1000	1000	25
USA-1500	1500	45
USA-2000	2000	50
USA-2500	2500	50
USA-3000	3000	50

USA 3076-CA for ALL counties, and Special Honours Plaque, now available for $US40.00.

B. Conditions

1. USA-CA is available for all licensed amateurs everywhere in the world and is issued to them as individuals for all county contacts made, regardless of calls held, operating QTHs, or dates. Special USA-CAs also available to SWLs on a "heard" basis.

2. All contacts must be confirmed by QSL and such QSLs must be in one's possession for identification by certification officials.

3. Any QSL card found to be altered in any way will disqualify the applicant.

C. County Identity

1. The National Zip Code and Directory of Post Offices will be the official guide in determining identity of counties of contacts as ascertained by name of nearest municipality.

(Note: The following should only apply to stations in USA and Canada.)

Publication No 65 is available at your local post office or from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402 (Price $9.50) Stock No. 039-000-00264-7, but will be shipped only to the USA or Canada.

2. Unless otherwise indicated on QSL cards, the QTH printed on cards will determine county identity.

3. For mobile and portable operations the postmark shall identify the county unless information stated on QSL cards makes other positive identity.

4. In the case of cities, parks, or reservations not within counties proper, applicants may claim any one of adjoining counties for credit (once).

5. QSO via repeaters, satellites, moonbounce, and phone patches are NOT valid for USA-CA.

Administration of USA-CA Program

1. The USA-CA program will be administered by a CQ staff member acting as

FT-1000MP

YAESU Is About To Turn The World Of HF Transceivers On Its Head!

Dedicated to the memory of JA1MP, the founder of Yaesu Musen, we are proud to announce the release of Yaesu's latest high performance HF base transceiver, the new FT-1000MP.

Based upon the legendary performance of the FT-1000 which, for more than half a decade, has been highly acclaimed by the world's top DXers, Yaesu has created a new 100W HF masterpiece built upon proven RF design and the introduction of a new technology to the Amateur marketplace: Enhanced Digital Signal Processing (EDSP). Teamed up with Direct Digital frequency synthesis, an outstanding receiver section featuring a high intercept front-end and a wide variety of IF filters (including a Collins Mechanical Filter), the FT-1000MP's exclusive EDSP facilities provide an impressive array of IF-based noise-reduction and interference rejection filters for enhanced receiver performance, as well as flexible tailoring of the transmitter for outstanding signal clarity.

The performance of digital processing systems is highly dependent on the quality of software inside the transceiver, and here Yaesu's experience with software design really shines through. Yaesu's IF-based EDSP provides 4 random-noise filtering protocols, audio enhancement with 4 equalisation programs for Tx and 3 for Rx, and an automatic notch filter which identifies and eliminates multiple interfering carriers or heterodynes. Front panel selectable EDSP filter contours (Low, Mid, or High-Cut responses; or Bandpass) aid in QRM rejection, providing improved signal-to-noise ratios and razor sharp selectivity. A comprehensive menu system allows you to easily hear the effect of various EDSP settings, so you can choose the best selection for your operating conditions.

In keeping with the improvements that the EDSP facilities provide, the FT-1000MP also provides new features such as selectable flat response or optimised receiver front-ends, 3 antenna connectors (2 main antennas and an Rx-only socket), selectable tuning steps as small as 0.625Hz, and a Shuttle-jog tuning knob for fast QSY operation. For optimised transmit audio, different SSB IF offsets can be set for both normal and RF speech-processed transmissions, and can be used in conjunction with the Tx EDSP functions. Separate bar-graph S-meters are provided for each receiver, and even a synchronous detection system is used for better AM reception on the Shortwave bands.

Standard features include SSB/CW/AM/FM operation, an in-built AC power supply and Automatic antenna tuner, 13.5V DC socket, dual-mode noise blankers, 500Hz CW and 6kHz AM IF filters, full break-in CW, an in-built electronic keyer with memory, a multi-colour high resolution display, an RS-232 computer interface, and a MH-31B8 hand microphone.

With the new FT-1000MP due to arrive soon, now's the time to call us for a copy of Yaesu's 12-page colour booklet explaining more about the FT-1000MP's new level of HF performance and design excellence. We're sure you'll soon agree that the world of HF transceivers has just taken a giant leap forward.

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DICK SMITH ELECTRONICS

USA-CA Custodian, and all applications and related correspondence should be sent directly to this person's QTH.

2. Decisions of the Custodian in administering these Rules and their interpretation, including future amendments, are final.

Record Book and Bookkeeping

1. The scope of USA-CA makes it mandatory that special Record Books be used for applications. For this purpose, CQ has provided a 64-page, 4.25 by 11 inch Record Book which contains application and certification forms and which also provides record-log space meeting the conditions of any Class award and/or endorsement required.

2. A completed USA-CA Record Book constitutes the medium of basic application and becomes the property of CQ for record purposes. On subsequent applications for either higher classes or for special endorsements, applicants may use additional Record Books to list required data, or may make up their own alphabetical lists, conforming to requirements.

3. Record Books are to be obtained directly from CQ, 76 N Broadway, Hicksville, NY 11801 for $US1.25 each. Recommend two be obtained, one for application use, and one for personal file copy.

Application

1. Make Record Book entries necessary for county identity and enter other log data necessary to satisfy any special endorsements (band-mode) requested.

2. Have the certification form provided signed by two licensed amateurs (General Class or higher) or an official of a national-level radio organisation or affiliated club verifying that QSL cards for all contacts as listed have been seen. The USA-CA Custodian reserves the right to request any specific cards to satisfy any doubt whatever. In such cases, the applicant should send sufficient postage for return of cards by registered mail.

3. Send original completed Record Book (NOT a copy) and certification forms and handling fee. Fee for non-subscribers to CQ is $US10.00. For subscribers the fee is $US4.00. Subscribers please include recent CQ mailing label. Send to USA-CA Custodian, Dorothy Johnson, WB9RCY, 333 South Lincoln Avenue, Mundelein, IL 60060, USA. For later applications for higher class seals, send Record Book or self-prepared list per Rules and $US1.25 handling charge. For applications for later special endorsements (band-mode) where certificates must be returned for endorsement, send certificate and $US1.50 for handling charges.

Note: At the time any USA-CA Award certificate is being processed, there are no charges other than the basic fee, regardless of number of endorsements or seals; likewise, one may skip lower classes of USA-CA, and get higher classes without losing any lower awards credits or paying any fee for them.

I conclude this short resume with the comment that a great portion of the above generally applies to North American amateurs, even though the award rules specify worldwide operation. Also bear in mind that I am quoting from a US publication, and that names and addresses may have changed in the interim.

The Australian representative for CQ Magazine (when I last checked in 1986) was VK5IE. I suggest that questions may be directed to him, or to the various Net controllers.

*PO Box 2175 Caulfield Junction 3161

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Club Corner

Riverland Radio Club Inc

"Communications 96" was held in Renmark on Saturday, 27 April and generated a lot of interest for the Riverland people as well as for visitors from SA and interstate.

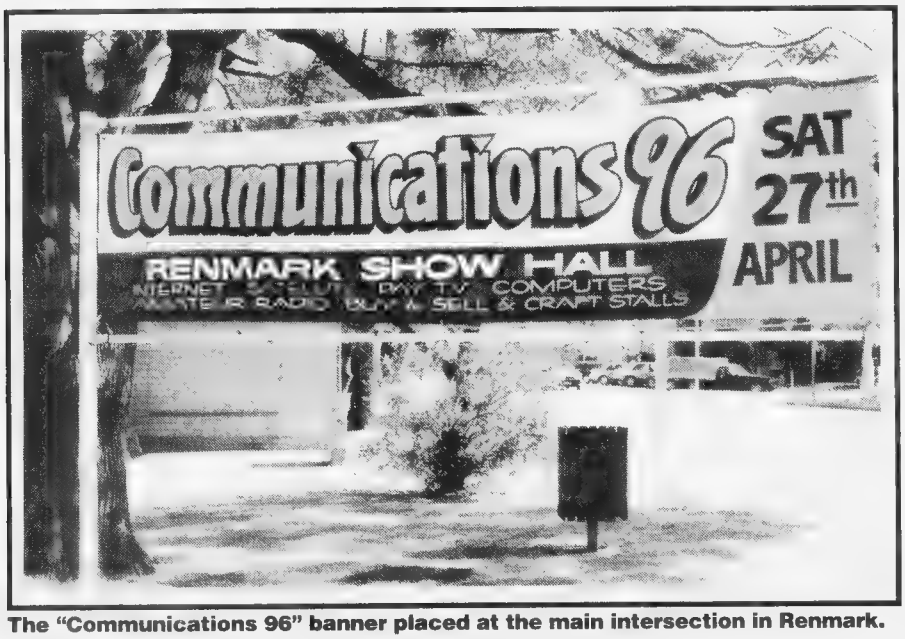
Perfect weather conditions gave those who attended a chance to see some of the latest technology in communications. Great interest was shown in the GPS (Global Positioning System), Internet, satellite communications and pay TV.

The Buy and Sell stalls were well patronised and most stall holders were well pleased with the day.

Many thanks to our major sponsors, the SA Division of the WIA, and the Antenna and TV Systems Division of Hills Industries. Thanks also to Daycom Communications and ABC Radio 5MV for their support.

The Club will be holding their AGM on Thursday, 4 July at 7.30 pm.

Doug Tamblyn VK5GA
Secretary
Box 646
Renmark SA 5341

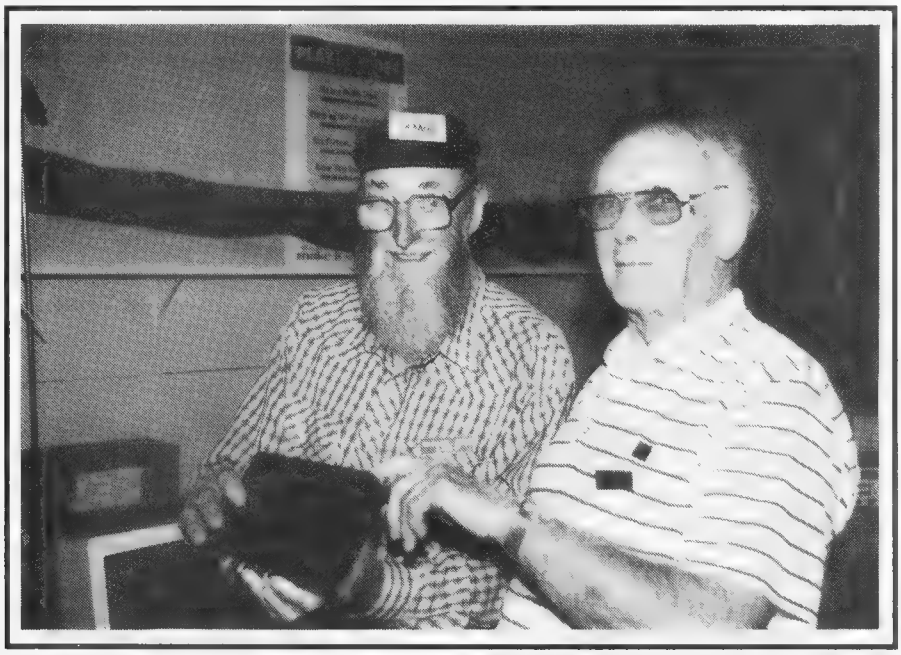


The "Communications 96" banner placed at the main intersection in Renmark.

CW Operators' QRP Club Inc

Barry Samuels VK5BLS, our President, noted in March there are now 470 members from all over VK, and some overseas radio amateurs who are QRP operators. Homebrew by VK members is popular and technical articles continue to be regular features in the Club's quarterly journal *Lo-Key*, edited by Don VK5AIL.

A new book which should assist all radio amateurs who enjoy designing and building electronic projects will soon be available. *The Electronic Data Book for Homebrewers and QRPers, including QRP Yellow Pages*, edited by Paul Harden NA5N and Richard High W0HEP, is based on a series of articles which were published in the Colorado QRP Club Newsletter. The Data Book is spiral



"Woody" VK3AGD (left) and Hugh VK5BC examining a radio at "Communications 96".

bound, has 192 pages, and is divided into sections including QRP Rig Circuits and Analysis; Electronic Component Data Sheets with physical and electrical specifications and application notes; Specific Component Data Sheets with application notes and typical circuits; Reference Data for Homebrewers; QRP Operating Aids; and QRP Rig Lab Tests. The QRP Yellow Pages section gives details of mail-order suppliers in Australia, the UK and the USA, and has a listing of QRP clubs worldwide.

This book is a must for all home-brewers and the CW Operators' QRP Club is making this book available for purchase by all VK amateurs, whether they are club members or not. To order, send $25.00 plus $4.00 P&P (within Australia) to the Secretary, Kevin Zeitz VK5AKZ, 41 Tobruk Avenue, St Mary's SA 5042. And while you are about it, why not send Kevin an extra $10.00 and become a member.

Murray Lewis VK3EZM
CW Operators' QRP Club #234

Are you reading someone else's *Amateur Radio?* Call 03 9528 5962 to find out how to get it every month!

Radio Amateurs Old Timers Club (RAOTC)

Although club membership is increasing quietly and steadily, we feel sure that quite a lot more operators could find membership worthwhile. Despite the club name ("old timer" is a long standing friendly greeting), age does not have any bearing on eligibility for membership. Clause 4 of the Constitution reads: *Eligibility for membership in the RAOTC is available to amateurs who have held or been qualified to hold an amateur licence for a period of 25 years or more.* This means that any amateur, licensed or qualified to be licensed before 1971 could be eligible. It is certainly good value for money.

The joining fee is $2.50 to cover printing and postage of the attractive 25 cm by 20 cm membership certificate. The annual subscription to cover 1 July to 30 June is only $5.00. Life membership is available for $100.

Members get two interesting and well-presented magazines each year, one in March and the other in September. The RAOTC has a broadcast of news and information on the first Monday of each month except January, transmitted on 2, 20, 40 and 80 metres.

The Club Secretary, Arthur Evans VK3VQ, at 3/237 Bluff Road Sandringham VIC 3191 or phone (03) 9598 4262, will be glad to send you an application for membership if you are interested. An application from can also be obtained from Allan Doble VK3AMD, 206 Poath Road, Hughesdale VIC 3166 or phone (03) 9570 4610.

Allan Doble VK3AMD

Summerland Amateur Radio Club

Summerland Annual Minifest

Sunday, 4 August is the date for the Summerland Radio Club Minifest. It will be held at the Clubrooms, 412 Richmond Hill Road, Goonellabah (Lismore) from 9.00 am to 4.00 pm.

There will be heaps of pre-loved goodies, plus display and commercial tables of new equipment, as well as competitions and refreshments.

For more information, contact John VK2FFO on (066) 224 969 or Bert VK2HIV on (066) 243 329. Or try the club BBS VK2SRC-2 direct or via VK2RPL-1, Rose Node 668900.

Graeme VK2GJ
Publicity Officer
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Contests

*Peter Nesbit VK3APN - Federal Contest Coordinator**

Contest Calendar July – September 96

Jul 1	Canada Day CW/Phone	(June 96)
Jul 6	Australasian Sprint (CW)	(June 96)
Jul 6	NZART Memorial Contest	(June 96)
Jul 6/7	CQ WW VHF Contest	
Jul 13	Australasian Sprint (Phone)	(June 96)
Jul 13/14	IARU HF Championship	(June 96)
Jul 20	South Pacific 160 m Contest	(June 96)
Jul 20	Colombian DX Contest (Phone/CW)	(June 96)
Jul 27	Waitakere 80 m Phone Sprint	(June 96)
Jul 27	West Australian Annual Contest (SSB)	(June 96)
Jul 27/28	RSGB IOTA Contest	(June 96)
Aug 3	Waitakere 80 m CW Sprint	(June 96)
Aug 3	West Australian Annual Contest (CW)	(June 96)
Aug 3/4	YO DX Contest	
Aug 10/11	Worked All Europe CW	
Aug 17/18	Remembrance Day Contest	
Aug 17/18	Keyman's Club of Japan (CW)	
Sep 7/8	All Asia DX Contest Phone	(May 96)
Sep 7/8	Bulgarian DX Contest	
Sep 14/15	Worked All Europe Phone	
Sep 21/22	SAC DX CW	
Sep 28/29	SAC DX Phone	
Sep 28/29	CQ WW RTTY DX Contest	

The rules for the ever popular Remembrance Day (RD) Contest appear this month, courtesy of Alek VK6APK. Last year's new rules worked very well, and a lot of positive feedback was received from entrants, so they have been retained intact.

To further stimulate activity, a small change has been made to the method of calculating the improvement ratio. Previously, the ratio for each Division was calculated from this year's total points divided by last year's total points (performed separately for HF and VHF, then averaged). Whilst simple to implement, this was unfair to those Divisions making a special effort to improve their score, because it effectively represented a 100% handicap for them the following year. Under that system, the best that they could realistically hope for was an alternating string of wins and losses.

To overcome this problem, from now on the improvement ratio will be based upon a weighted average, in which the effect of the previous year's score is reduced from 100% to 25%. Rather than a straight average of the previous four years, which would suffer from "bumps" as high or low scoring years moved outside a four year window, an exponential average will be used instead.

This is much simpler than it sounds. One simply notes the numerator and denominator used in the calculations for the previous year, multiplies the numerator by 25% and the denominator by 75%, and adds them together. The result becomes the denominator for the current year.

The reason for the 25% weighting is that, under the rules prior to last year, Divisional weighting factors were derived from a four year period (ie 25% weighting). Since everyone seemed happy with that, similar weighting has been adopted here.

I was going to present some figures to show how well this technique works; however, this is not meant to be a maths lecture, so I will leave it to the more enthusiastic readers to run some figures through their calculators.

Finally, a reminder about the new 160 m phone/CW contest on the 20th of this month. For once, we will not have to struggle along in someone else's 160 m contest; this one is all ours! Please give it your full support.

Many thanks this month to VK6APK, DL2DN, and JA1DD. Until next month, good contesting!

73, Peter VK3APN

Worked All Europe DX Contest

10/11 August (CW), 14/15 September (SSB), 9/10 November (RTTY); 0000z Sat – 2400z Sun.

The object is to work European stations (except in the RTTY section, where anyone works anyone). Bands are 80-10 m. In the contest, avoid 3550-3800 and 14060-14350 kHz on CW, and 3650-3700, 14100-14125 and 14300-14350 kHz on SSB. The minimum time of operation on a band is 15 minutes, although bands may be changed within this period if, and only if, the station worked is a new multiplier. Categories are single operator all bands; multioperator single transmitter; and SWL all bands. DX cluster support is allowed. A maximum of 36 hours is allowed for single operator stations, with up to three rest periods (mark them in the log).

Exchange RS(T) plus serial number. Additional points can be gained reporting QTCs, as follows. After working a number of European stations, details of those previous QSOs (ie QTCs) can be reported during a current QSO with a European station. In the CW and phone sections, QTCs are sent from non-European stations to European stations. In the RTTY section, QTCs can be sent to any station, including non-Europeans, outside one's own WAC continent. A QTC contains the time, callsign, and QSO number of the station being reported; eg "1307/DA1AA/431" means you worked DA1AA at 1307z and received serial number 431. Commence QTC traffic by sending the QTC series and number of QSOs to be reported; eg "QTC 3/7" indicates this is the third series and that seven QSOs will be reported. A QSO may be reported only once, and not back to the originating station. A maximum of 10 QTCs can be sent to the one station, who can be worked more than once to complete the quota. Only the original QSO, however, will have points value.

The multiplier on each band equals the number of European countries worked on that band (or on RTTY only, the number of DXCC/WAE countries), times a band factor. The band factors are four for 80 m, three for 40 m, and two for 20/15/10 m. Add the band multipliers together, and multiply by the sum of (QSOs + QTCs) to obtain the final score.

SWLs may log each station heard, European and non-European, once per band. Logs must contain both callsigns and at least one of the control numbers. Count one point for each station logged, and one point for each complete QTC received (max 10 per station). It is possible to claim up to two multipliers per logged QSO.

Use standard log and summary sheet format. Include a checklist for more than 100 QSOs on any band and, if more than 100 QTCs have been sent, include another checklist to show that the quota of 10 QTCs per station is not exceeded. Logs can be submitted in ASCII on DOS disk, providing a paper summary sheet is included. Send logs to: WAEDC Contest Committee, Box 1126, D-74370 Sersheim, Germany. Deadlines are 15 Sept (CW), 15 Oct (SSB), 15 Dec (RTTY). Comprehensive awards are offered.

European countries are: C3 CT1 CU DL EA EA6 EI EM/N/O ER ES EU/V/W F G GD GI GJ GM GM (Shetland) GU GW HA HB HB0 HV I IS IT JW (Bear) JW (Spitzbergen) JX LA LX LY LZ OE OH OH0 OJ0 OK/L OM ON OY OZ PA R1/FJL R1/MVI R/U (Russia) RA2 S5 SM SP SV SV5 (Rhodes) SV9 (Crete) SV (Mt Athos) T7 T9 TA1 TF TK UR-UZ (Ukraine) YL YO YU Z3 ZA ZB2 1A0 3A 4U (Geneva) 4U (Vienna) 9A 9H.

Keyman's Club of Japan (CW)

17/18 August, 1200z Sat – 1200z Sun.

This contest is designed for CW enthusiasts, and will particularly suit those who are collecting Japanese prefectures for awards. An interesting variation is the inclusion of 6 m. The only category is single operator multiband. Suggested

frequencies are 3510-3525, 7010-7030, 14050-14090, 21050-21090, 28050-28090, and 50050-50090 kHz. Exchange RST plus continent code (OC); JAs will send RST plus district code. Score one point per QSO. The multiplier on each band is the total number of JA districts (max 60). Final score equals total points x total multiplier. Show duplicate QSOs with zero points, attach a summary sheet showing all usual information, and send the log to: Yasuo Taneda JA1DD, 3-9-2-102 Gyoda-cho, Funabashi, Chiba 273, Japan, to be received by 29 September 1995. ASCII logs on DOS disk are most welcome.

1996 Remembrance Day Contest

Presented by Alek Petkovic, VK6APK

Purpose: This contest commemorates the amateurs who died during WWII, and is designed to encourage friendly participation and help improve the operating skills of participants. It is held annually on the weekend where the Saturday is closest to 15 August, the date when hostilities ceased in the south-west Pacific area.

It is preceded by a short opening address by a notable personality, transmitted on various WIA frequencies during the 15 minutes immediately before the contest. During this ceremony, a roll call of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually to the WIA Division with the best performance. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice, to perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy, which is presented at the Annual Federal Convention. The winning Division holds the trophy for the following 12 months, and receives a certificate. The leading entrants will also receive certificates.

Objective: Amateurs in each VK call area will endeavour to contact other amateurs in other VK call areas, P2 and ZL, on 1.8-30 MHz (10, 18 and 24 MHz excluded). On 50 MHz and above, amateurs may also contact other amateurs in their own call area.

Contest Period: 0800 UTC Saturday, 17 August to 0759 UTC Sunday, 18 August 1996. As a mark of respect, stations are requested to observe 15 minutes silence prior to the start of the contest, during which the opening ceremony will be broadcast.

Rules:

1. The contest categories are:

(a) High Frequency (HF) – for operation on bands below 50 MHz;

(b) Very High Frequency (VHF) – for operation on the 50 MHz band and above.

2. Within each category the applicable sections are:

(a) Transmitting Phone (AM, FM, SSB, TV);

(b) Transmitting CW (CW, RTTY, AMTOR, PACTOR, packet, etc);

(c) Transmitting Open (a) and (b);

(d) Receiving (a), (b) or (c).

3. All amateurs in Australia, Papua New Guinea and New Zealand may enter the contest, whether their stations are fixed, portable or mobile.

4. Cross mode and cross band contacts are not permitted.

5. Call "CQ RD", "CQ CONTEST", or "CQ TEST".

6. On bands up to 30 MHz, stations may be contacted once per band using each mode, ie up to twice per band using Phone and CW.

7. On the 50 MHz band and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.

8. Multi-operator stations are not permitted (except as in Rule 9), although log keepers are allowed. Only the licensed operator may make a contact under his or her own callsign. Should two or more operators wish to operate a particular station, each will be considered as a separate contestant and must submit a log under their own individual callsign.

9. Club stations may be operated by more than one operator, but only one operator may operate at any time, ie no multi-transmission.

10. For a contact to be valid, numbers must be exchanged between the stations making the contact. The number will comprise RS (for phone) or RST (for CW), followed by three figures commencing at 001 for the first contact, and incrementing by one for each successive contact.

11. Contacts via repeater (including satellite) are not permitted for scoring purposes. Contacts may be arranged through a repeater. The practice of operating on repeater frequencies in simplex is not permitted.

12. On all bands except 160 m, score one point per completed valid contact, and on 160 m, score two points per completed valid contact. On CW, score double points.

13. Logs should be in the format shown below, and accompanied by a summary sheet showing the following information:

Callsign; Name; Address;

Category (HF or VHF);

Section (Phone, CW, Open, or Receiving);

Total score;

Declaration: *I hereby certify that I have operated in accordance with the rules and spirit of the contest.*

Signed: *Date:*

14. Entrants may submit one HF log, and one VHF log. Separate logs and summary sheets are preferred.

15. Entrants temporarily operating outside their allocated call area, who wish to have their points credited to their home Division, should make a statement to that effect on their summary sheet/s.

16. Forward the log/s and summary sheet to: RD Contest Coordinator, A Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020. Endorse the envelope "Remembrance Day Contest" on the front outside. Entries must be forwarded in time to reach the Contest Coordinator by Friday, 20 September 1996.

17. Certificates will be awarded to the leading entrants in each section, in each VK call area, P2, and ZL. Entrants must make at least 10 contacts to be eligible for awards, unless otherwise decided by the Contest Coordinator.

18. Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.

Determination of Winning Division: Scores of VK0 stations will be credited to VK7. Scores of VK9 stations will be credited to the mainland VK call area which is geographically closest. Scores of P2, ZL, and SWL stations will not be included in these calculations. Entrants temporarily outside their allocated call area may elect to have their score credited to their home Division. If no such election is made, their score will be credited to the Division representing the call area in which they operated during the contest, as defined herein.

For each Division, an "improvement factor" will be calculated as follows:

(a) For transmitting logs only, the Division's total HF points will be divided by a weighted average of its HF points for the previous year. This weighted average will be determined from the numerator and denominator used to calculate that Division's previous improvement factor, and will equal 25% of the numerator plus 75% of the denominator;

(b) The same calculations will be performed for VHF;

(c) The average of (a) and (b) will be the improvement factor for that Division.

The Division with the highest improvement factor will be declared the winning Division.

Receiving Section Rules

1. This section is open to all SWLs in Australia, Papua New Guinea, and New Zealand. No active transmitting station may enter this section.

2. Rules are the same as for the Transmitting Section, as applicable.

3. Only completed contacts may be logged, ie it is not permissible to log a station calling CQ. The details shown in the example must be recorded.

4. The log should be in the format shown below.

Example Summary Sheet

Remembrance Day Contest 1996

Callsign: VK1XXX

Name: Joe Brown

Address: PO Box 123, Farm Orchard, ACT 2611

Category: HF

Section: Transmitting phone

Total Score: 505

Declaration: *I hereby certify that I have operated in accordance with the rules and spirit of the contest.*

Signed: *Date:*

Example Transmitting Log

Remembrance Day Contest 1996

Callsign: VK1XXX

Category: HF

Section: Transmitting phone

Date Time (UTC)	Band (MHz)	Mode	Call	No. Sent	No. Rcvd	Pts
0800	14	SSB	VK2QQ	58001	59002	1
0802	14	SSB	VK6LL	59002	59001	1
0805	14	SSB	VK5ANW	59003	58011	1
0807	14	SSB	ZL2AGQ	57004	57003	1
0809	14	SSB	VK4XX	59005	59007	1

Example Receiving Log

Remembrance Day Contest 1996

Name/SWL No: L30371

Category: HF

Section: Receiving phone

Date Time (UTC)	Band (MHz)	Mode	Calling	Called	No. Sent	No. Rcvd	Pts
0800	14	SSB	VK1XXX	VK2QQ	59001	59002	1
0802	14	SSB	VK1XXX	VK6LL	57002	57001	1
0805	14	SSB	VK5ANW	VK1XXX	59011	59003	1
0807	14	SSB	ZL2AGQ	VK1XXX	58003	59004	1
0809	14	SSB	VK7AL	VK2PS	59007	58010	1

**PO Box 2175, Caulfield Junction, VIC 3175*

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Divisional Notes

Forward Bias – VK1 Notes

Peter Parker VK1PK

Repeater Linking Comes to Canberra

A new 70 centimetre repeater and a link to Goulburn. That's the result of months of work by the VK1 Repeater Committee. The effort means that Canberra now has a second 70 centimetre repeater, transmitting on 438.375 MHz. You'll remember that frequency as the one formerly used by the Isaac's Ridge repeater. The repeater is automatically linked to Goulburn; no access tones are required by the user to operate the link.

It is easy to use the link. Local traffic will have a short tail, while more distant stations coming through the link will have a longer tail. Local signals will over-ride those coming through the link.

At the time of writing, the link is only to Goulburn. However, when the link to Wollongong is restored, Canberra amateurs will be able to talk to that city as well via UHF.

Neil VK1KNP advises that several working bees have been carried out on Mt Ginini prior to the snow season. Activities performed have included improving the earthing and power protection at the site; installation of Earth Leakage Circuit Protection; underground cabling; the replacement of rusting bolts on the Ginini tower; transporting an ex-TV station tower that had been donated to the Division from Mount Ginini to Roger VK2SRH's place at Murrumbateman; and general cleaning-up of the site

There has also been considerable antenna work, including an installation of a corner reflector for the UHF link to Goulburn; switching the PD220 7 dB gain collinear antenna over to the packet repeater; and a decision to use more rugged, lower gain antennas, due to the high failure rate of the PD220 collinears. The 2 m repeater receiver antenna is of this type at present. The 2 m voice repeater is currently transmitting into two stacked folded dipoles underneath the receive antenna. This configuration gives around 3 dB gain with a cardioid pattern toward Canberra.

VK1BP Opens

Some fifteen to twenty amateurs and scouting officials were at the Hughes Scout Hall on Saturday, 1 June for the official opening of VK1BP, the Scout Association's Amateur Station. The station, opened by Pat Boling the ACT Scout Commissioner, will be used for the education of Scouts in radio and electronics. One scout has already passed his Regulations exam.

New Awards Manager

VK1 now has a new Awards Manager. He is Simon VK1KFC. Simon replaces John VK2EJC who previously retransmitted this broadcast on 80 metres and ran the Awards Net. Congratulations to Simon for taking on this task, and thanks to John for his efforts over the last few years.

VK1 Award Net

Readers are reminded of the 80 metre VK1 Award Net after the 8 pm Sunday evening Divisional broadcast. Starting after the VK1WI 80 metre call-backs on 3.570 MHz, the award net has attracted interest from interstate amateurs as far afield as VK6. Both local and interstate amateurs are eligible to claim the award. All that is needed is 20 contacts with 20 different VK1 amateurs on HF, or 10 on VHF/UHF. The cost of the award is $3.00. Full information on award rules is given on the award net.

VK180 $3 Receiver Kit Popular

To foster amateur radio education and experimentation, the VK1 Division has developed an 80 metre direct conversion receiver project. Launched at May's Divisional meeting, the receiver proved an instant success, with thirteen of the fifteen short-form kits produced being sold on the night.

Based on the VK680 Receiver (*Amateur Radio,* September 1995), the VK180 uses two transistors and one IC. Controlled by a 3.58 MHz ceramic resonator, the set exhibits good frequency stability, is easy to tune and requires no alignment. Its unique construction, based on the use of adhesive copper tape, means that the project can be tackled with confidence by those with minimal construction experience.

The kits, containing a ceramic resonator, instructions, and copper tape, were marketed by the Division for just $3.00. All other parts to complete the project are readily available in Canberra, bringing the set's total cost to approximately $25.00. At the time of writing, there was just one kit remaining; however, the production of a second batch was being considered.

Updated Divisional Information on Internet

Updated information on the services the Division provides its members has now been placed on the Internet. You'll find it on two local home pages. Try the VK1KCM Home Page at http://email.nla.gov.au/~cmakin/wia/vk1guide.html
or the VK1DA Home Page at
http://www.ozemail.com.au/~andrewd/hamradio/index.html#vk1guide

Using VK1RGI

Neil VK1KNP, the convenor of the VK1 Repeater Committee, reminds repeater users that the time-out for the VK1RGI two metre repeater is exactly 2.5 minutes. He also points out the need for users to wait for the beep before commencing their overs; too many people time themselves out, having commenced their transmissions too soon.

New Venue for Committee Meetings

As foreshadowed in May's *Forward Bias*, a central venue has been obtained for the VK1 Division's Committee meetings. Held on the second Monday of the month, meetings are now held at the Mawson Primary School, starting at 8 pm. Members are invited to attend. General meetings continue to be held at the Griffin Centre on the fourth Monday of the month.

Operating Standards

Some concern has been expressed recently about the perceived lack of on-air decorum of some local amateur operators. Amateur communication can be intercepted by thousands of scanners and shortwave receivers across the country. We should ensure that the topics we discuss and the language we use is not of a nature so as to diminish our standing in the community.

VK2 Notes

Richard Murnane VK2SKY

Membership Drive Winners

Council have confirmed the following winners in the Membership Drive drawn at the Annual General Meeting:

Wyong Field Day Prize ($100 plus one year's membership) – Mr Michael Bogos VK2KSI from Ingleburn.

Grand Prize (WordPerfect 6.1 donated by Cesar Miranda) – Mr Robert F Kennedy VK2LBK from Telarah.

Winners have been notified and prizes posted to their QTH.

VK3 Notes

Brenda Edmonds VK3KT

1996 AGM

The 1996 AGM of the Victorian Division held at Ashburton on 29 May was attended by about 75 members.

For the first time in over 20 years an election was necessary to fill the 10 available seats on Council. Voting closed at the start of the meeting but, because of the time needed to count the votes, the meeting agreed that the counting be done by the Division's Auditors the next day and all attendees be notified by mail of the ballot results. The sealed ballot envelopes were opened and the number of ballot papers counted by four volunteers while the meeting progressed. In all, 682 ballot papers were lodged.

The following candidates have been declared elected:-

S Bushell	VK3HK
R Carmichael	VK3DTR
R Hailey	VK3NC
G Hunt	VK3ZNE
J Linton	VK3PC
G McDiarmid	VK3NE
P Mill	VK3APO
W Trigg	VK3JTW
G Viscaal	VK3MQ
B Wilton	VK3XV

Office bearers will be decided at the first meeting of the new Council, scheduled for 13 June.

As well as receiving the reports from the President, Secretary, Treasurer and Auditor, which had been circulated, the meeting considered and voted on a number of items for which notice of motion had been given.

The motions carried recommended that the incoming council give consideration to:-

(a) Investigating the feasibility of moving the present business office of the Victorian Division closer to the central business district of Melbourne (this motion succeeded because the Secretary abstained from voting or using the proxies he held. The Secretary advised the meeting he had a conflict of interest).

(b) Updating the Articles of Association and making same available to members.

(c) Holding the Annual General Meeting of the WIA Victorian Division on a Sunday.

Because of the unusual amount of business, there was little time available for general discussion on unscheduled topics; however, the meeting touched on the future of Division broadcasts and the need for improved communications with members.

Perceived Threat to Bands

Readers may be aware of an item on packet, under an ARRL identification, noting that the low earth orbit satellite (LEO) industry has listed the 2 m and 70 cm amateur bands as "candidate bands" for allocation to that service at WRC-97. At this stage the possible real effect of such an allocation in Australia is unclear.

The VK3 Division Federal Councillor will monitor the situation with the Federal SMA Liaison Team. We will keep you informed.

VK6 Notes

John R Morgan VK6NT

Divisional GM

The May GM was the first to be held at CWA House, and the 33 members present seemed to enjoy their new surroundings. The planned lecture by a representative from the SMA had to be postponed but, nevertheless, plenty of interesting business was discussed.

Venue for Meetings

General Meetings are held on the third Tuesday of each month in the Board Room, 3rd Floor, CWA House, 1174 Hay Street, West Perth, commencing at 8 pm. There is no meeting in December. All interested persons (members and non-members, licensed or listener) will be made welcome. Free coffee and biscuits are available.

CWA House is a three-storey office-block on the north side of Hay Street in West Perth, about 80 m west of the intersection with Havelock Street. The entrance to the rear car-park is via the laneway at the western end of the building. You are requested not to park in the residents' bays, which are the ones directly in line with the building's rear doors. Enter the building via the front or rear doors, and take the lift to the top floor, where the meetings will be held in the Board Room. The rear entrance and facilities are wheelchair-friendly. The exit from the car-park is via the laneway at the eastern end of the building. Be advised that this section of Hay Street is a one-way road, and so all traffic must therefore turn right on leaving.

Hamfest '96

This event, which is organised each year by the Northern Corridor Radio Group (known as the NCRG, club callsign VK6ANC), will occur on Sunday, 3 November 1996 at the Cyril Jackson Community and Recreation Centre, Perth. This is the same venue as last year's most successful gathering.

Do You Know VK6BDG?

I recently received a letter from Rob Tymms VK3BDU, seeking information as to the present whereabouts of James Basil Rodrigo, who has occasionally held the callsign VK6BDG (but currently does not), and who also operates from Singapore as 9V1WW. Rob has an airmail QSL card from UZ1PWA for "9V1WW via VK6BDG" which he cannot forward, and would appreciate your help.

Farewell, Old Friend ...

It is with sadness that I report the passing of my old friend Saxon, known in this house (unofficially, of course) as VK6DOG. He could recognise my voice, and that of my XYL Eve VK6KCQ, amongst all those to be heard on our local repeater. He also knew that he was supposed to stay out of the ever-overcrowded shack, but often his wag got the better of him, and he just could not help himself.

If You Have Material ...

Material for inclusion in this column may be sent to VK6NT @ VK6ZSE.#PER.#WA.AUS.OC, or to PO Box 169, Kalamunda WA 6076, or via telephone on (09) 291-8275.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

There was some concern and alarm raised from recent packet bulletins emanating from ARRL HQ in the USA, concerning a proposal by several commercial enterprises to have the 144 MHz and 420 MHz amateur allocations given over to low orbiting satellites for mobile communications, known as LEOS. The Southern Branch, at its June meeting, expressed its concern after the Divisional broadcast on VK7WI quoted the bulletins but decided to await what response was forthcoming from the Federal Office. We believe that the prompt response from concerned amateurs within North America has led to the Federal Communications Commission, the US regulatory body, to issue a clarifying statement on 5 June concerning the proposals.

It seems there are no plans to take away either 70 cm or 2 metres; it was only a suggestion from a working party to WARC '97. Over 1,000 responses were received and these have been forwarded to the appropriate working party. It is quite apparent that this WARC '97 Conference is going to be vitally important to all amateurs, and that urgent consideration has to be given by Divisional council to institute a WARC '97 appeal to fund adequate WIA representation at this Conference.

On behalf of the Tasmanian Division, I

would like to congratulate Ron Churcher VK7RN on being awarded the Order of Australia (OAM) in the Queen's Birthday Honours. He has been involved in various community activities in the Devonport area, including the Devonport Eisteddfod and Rotary. Also, he is currently the secretary of the Northwestern branch and was elected this year to Divisional Council. He is also a well-known 20 metre operator.

It looks likely that a six metre FM repeater could shortly be operational in the Launceston area. I do not have the precise frequency details but these will be announced over VK7WI.

Also, the amount of RF floating around Mount Wellington is substantial and recently caused some problems to some automobiles parked at the summit at the official opening ceremonies of the new tower. Ask VK7GL about it!

I reported in a recent column that the Division lost its e-mail address, when Tamar Communications ceased trading. Imagine our surprise when all outstanding e-mail was suddenly dumped in my personal mailbox. One was a membership enquiry from Hobart, which fortunately could be fixed. Yet there was a message from a VK4 sent in mid-April wanting to know what repeaters were in use in Launceston and when the next meeting was being held. A simple enough request, but the said gentleman had already arrived and departed by the time the e-mail message came out of cyber-space. I don't know if he was able to make contact with local hams while he was here but I am certain that help would have been forthcoming. If you come across the former Divisional e-mail address, please disregard it as it no longer exists.

In next month's column there will be a report on the next Divisional Council meeting, held in Launceston on the 22nd of last month.

Don't forget the meetings for July. They are: Southern Branch on Wednesday, 3 July at the Domain Activity Centre at 2000 EAST; Northwestern Branch on Tuesday, 9 July at the High School, Dial Road, Penguin at 1945 EAST; and Northern Branch on Wednesday, 10 July at St Patrick's College, Westbury Road (enter from Mount Leslie Road) at 1930 EAST.

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Help protect our frequencies – become an Intruder Watcher today

How's DX

*Stephen Pall VK2PS**

A few weeks ago I received a letter from an old-timer who asked for my help to identify a station he had worked. I quote from his letter: *"Yesterday afternoon I heard a dog-pile on 14020 kHz CW. The operator was very fast and very brief. Initially he was a good copy, but started to fade. I foolishly gave him a two burst of my callsign into the huge pile-up. To my utter amazement he came back, and gave me the usual 599. I replied with my report and he continued with his QRZ? and took the next one. Now comes the tricky bit. He did not send his callsign; if he did, he was often washed out with the huge pile up. Shortly after that, he went QRT. So now I am at a loss to know his call and QSL info. You might be able to help or suggest how else I could obtain the info."* I politely replied that I could not help.

Listening to a very busy net the other day with at least five rare DX stations in the background, two busy net-controllers, and a long queue of hopefuls all eager to have a contact with the DX, I heard a conversation along the following lines.

A passer-by old timer indicated that he wanted to have a contact with the DX station which he had just heard but he did not catch the operator's callsign. The polite net-controller, eager to please, told him to call the V51 station. The passer-by called the station with a VI prefix. He was corrected by the net-controller that the station was in Namibia. Our passer-by told the net-controller that he would then call the Libyan station. He was corrected again that the station was in Namibia, southern part of Africa. Back came the reply, *"I do not know that country"*.

You could almost hear in the background everybody in the queue gnashing their teeth and tearing their hair out.

What is the lesson out of this? If you are a beginner DXer, or an old-timer who occasionally bites into the DX-cherry, please listen first, long and hard. Do not jump in. Find out first, by listening, how the net works. Listen for the DX on the net. Get your correct bearing whether he is on the long-path or the short-path? If you cannot hear the DX, do not call it. Do not waste time. Wait your turn in the queue. These days, openings are very short and the DX station has limited time to stay on frequency. In pile-ups, listen, listen and listen! Sooner or later, the DX station will give its identification call. Concentrate on the correct callsign. QSL information is not of prime importance; that can be found out later. By listening first and acting later, you will not make a fool of yourself.

Lacepede Islands – VK6ISL – OC-214

The Lacepede Islands were discovered by the French explorer Baudin on his voyage of 1801-03 and named after M Lacepede, a naturalist. The islands are about 130 km north of Broome and 45 km offshore (122° 10' E – 16° 53' S). The four islands, West Island, Middle Island, Sandy Island and East Island, together with Robber Rocks and Weston Patch, occupy an area approximately 15 km by 8 km. The whole group is very low lying and surrounded by a large reef system.

Malcolm VK6LC, assisted by Dave VK6DLB, is a well known DXer who has visited many remote islands off the coast of Western Australia and the Northern Territory during the past 10 years in conjunction with the IOTA (Islands On The Air) program. The target of this latest expedition was Sandy Island, a low-lying, uninhabitated island infested with saltwater crocodiles.

The two amateurs travelled 2500 road kilometres from Karratha (VK6DLB) and Port Hedland (VK6LC) to Beagle Bay and return, and a total of 270 sea km on several trips between the mainland and Sandy Island. They carried 65 pieces of equipment weighing more than a ton in two four-wheel-drive vehicles with trailer attachments towing a five metre boat with a 175 HP motor. The boat, "Smart Move Too", was under the command of skipper Bill Johnson. It took them two days of travelling (14 and 15 May) before they arrived, exhausted, at Beagle Bay. The road from Broome is a rough dirt track which changes into sand tracks and takes eight hours of "hell" to travel 170 km.

At Beagle Bay the high tide was running out fast, leaving the loaded boat high and dry. They re-arranged the overloaded boat for two trips. It was a pitch black night and a nervous night was spent ashore with a close lookout for crocodiles. On the third day they were still not on the island. Wind and strong seas running at 2.5 m made it impossible to undertake the trip. After a 90 km round trip to Beagle Bay mission to stock up with fresh provisions, that afternoon the two hour, 45 km sea trip was under way at a speed of 22 knots. Time and the 9 metre high tide was running fast. Mal, his equipment and essential provisions were landed on the beach. Dave and skipper Bill went back to the mainland for the rest of the equipment.

Sunset was at 0930 UTC. Mal hurriedly set up his tent, moved the 5 kVA generator into position, erected the Butternut vertical antenna and, in 38° C heat, started to operate. He logged his first QSO with Denver 4S7DA at 0930. At 1217 UTC the new IOTA reference number OC-214 was received from Roger G3KMA.

On Friday, 17 May, two days behind schedule, Dave arrived with the rest of the equipment around midday. The rest of the day and the following night was spent getting all the equipment into place. By Saturday, 18 May, they were both completely exhausted, and the serious DXing was just starting. The weather was generally fine, with a hot 43° C in the shacks (tents) during the day and 22° C at night. Fortunately, there was a constant wind which kept the sandflies and mosquitoes away.

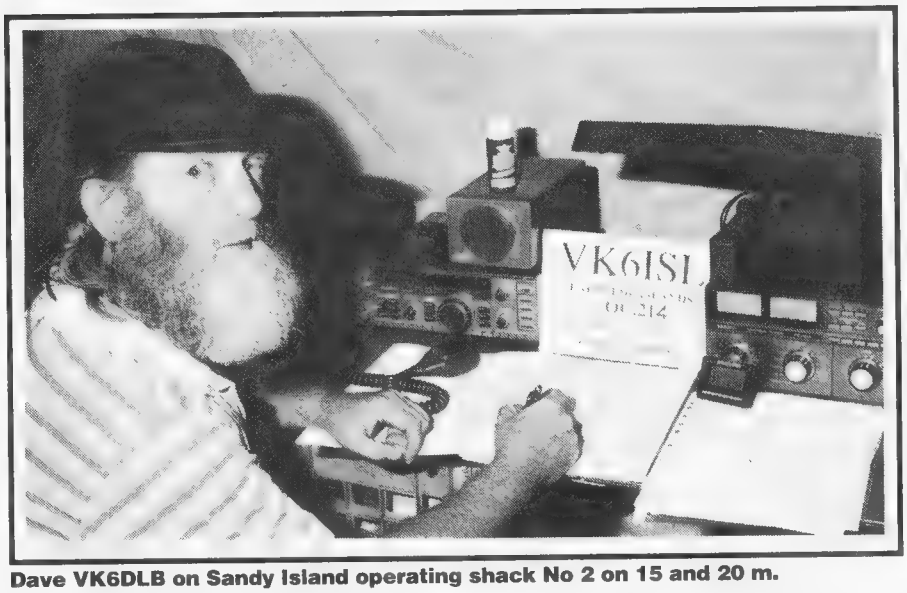
The final transmission was on Monday, 20 May at 2314 UTC. That night a storm, with high winds of up to 40 knots, and lasting seven hours, nearly blew them away. Operating on a 24 hours basis for three full days with very little sleep and the hot temperatures left them completely exhausted.

Tuesday, 21 May they rested, and started to dismantle the camp and repack the equipment, a 12 hour job. Wednesday morning, 22 May, they left the Lacepedes at 0415 UTC and arrived back at Broome around 1230 UTC.

During their three days of operation they were active on the 40, 20 and 15 metre bands for a total of 2104 QSOs. Six continents, 90 DXCC countries and 201 islands were contacted in a period when propagation, at the bottom of the solar cycle, was not favourable, As Mal said, "Who said there is no DX around?"

Equipment used included Yaesu FT-990, FT-757, and Kenwood TS-140 transceivers, with Transworld 1000 and Yaesu FL-2100Z amplifiers, a Butternut multiband vertical, an ATN 20 m monoband Yagi and an ATN 40 m four element 12 metre high Four Square vertical array. Power was supplied by 5 kVA and 1 kVA generators and heavy duty batteries.

The technical highlight of the expedition was the use of the giant Four Square vertical array manufactured especially by ATN Antennas for this expedition. After many months of planning, setting them out on the local beach at Port Hedland, tuning and re-tuning them, the array antenna system was a complete success. Tests have revealed that the front to back ratio was 30 dB and, comparing it against the single element Butternut, the forward gain was approximately 6db.



Dave VK6DLB on Sandy Island operating shack No 2 on 15 and 20 m.

Organising such a complex DXpedition is not easy, taking not only months but years of planning. Besides the variety of permits and licences required from a number of authorities, one has to think of the logistics of the matter. Radio equipment, power generators, 140 litres of fuel, a total of one kilometer of radial cables, 60 litres of fresh water, emergency rations and emergency water, tents, electric refrigerator, groundsheets, and many more other necessary items including a gimpy hammer and shovel.

And you need money, lots of it. Malcolm is one of those DXers who has financed all his expeditions during the past 10 years from his own financial resources. However, on this DXpedition he was assisted by some commercial sponsors, the Italian Diamond DX Club and many European and Australian and other IOTA hunters, world wide.

Nevertheless, after so many years of putting remote Australian Islands on the IOTA map, Malcolm's financial resources are exhausted and he will not be undertaking any future large-scale IOTA expeditions. The proposed Montgomery Island expedition near the Bonaparte Archipelago will not now take place. It would have required massive logistic resources, and lots of time and effort as the area is a completely isolated and uninhabited wilderness. Malcolm, therefore, will give back his government landing permit and will soon return to his family in Perth.

He will still take part in small IOTA experiments with phased vertical antennas. He is convinced that the Four Square array system has proved itself beyond doubt on island expeditions. His next experiment may take place as early as June/July and will feature a new ATN manufactured Four Square vertical array system for 20 metres. Mal hopes to be active from OC-140, the island where he started out on his DXpeditions 10 years ago. He hopes to be assisted by Terry VK6VS.

QSL for the Lacapede activity should be sent to I1HYW Gianno Varetto, PO Box 1 10060 Pancalieri, Torino, Italy with a return, self-adressed envelope and return postage.

Libya – 5A1A – Approved

It was announced, before the Dayton Hamvention on 17-18 May, that the 5A1A cards by the Ukrainian expedition and by the Libyan nationals are now acceptable for DXCC credit. Toly UT3UY, the leader of the Ukrainian DXpedition, was present at the convention and handed out about 600 handwritten cards for those who worked them. If you have already sent a card either to the OM or LZ managers as announced at the time of the activity, do not send a new card. Toly has already picked up those cards. There are 34,000 cards to be answered, so please be patient.

If you have not sent your card yet, because you have waited on approval of the activity, send your card direct to Anatoly Kirilenko, PO Box 439/3 Kiev-151, 252151, Ukraine. Include only one green stamp for return postage. Do not put any callsigns on any of the envelopes, and preferably use postal labels instead of postage stamps on your envelope.

There is also some talk that Toly will establish a QSLing point in the USA, but you will have to wait for further details. Toly can only confirm the contacts which were made in July 1995 with them. Any other contacts should be confirmed with the local operators. The station 5A1A has been allocated three box numbers, 78664, 78665 and 78666, and

it is reported that mail arriving at any of these three numbers will be delivered to the respective operators. It is rumored they only recently received cards and started to send them out. Enclose one or two green stamps for return postage.

For QSOs with 5A1A after July 1995, send your card to PO Box 78665, Tripoli, Libya.

Bouvet Island – 3Y5 – in 1998?

The South Sandwich Island Antarctic DX Group organizer, Tony WA4JQS, has announced that Gary Jones W5VSZ has been added to the SSIDXG team. Gary will fill the spot for a CW operator and will help to design and run a WEB site for the group.

At the Dayton Hamvention on 17-19 May, Luis XE1L was heard to say that the SSIDXG will be going to Bouvet sometime in December 1997 and/or January 1998. This news has not yet been officially confirmed, but somehow sounds familiar. Barry ZS1FJ, who last year visited Kermadec in a low-key operation, said in January this year that he anticipates a DXexpedition to Bouvet 3Y5 in 1997 courtesy of the South African Government with provision for transportation to and from the Antarctic. "I expect to be there for at least two weeks; two illustrious DXpeditioners will accompany the DXpedition," said Barry. Cross your fingers!!

Future DX Activity

* R1ANZ will be activated in July-September by Valetin RU1ZC from the Russian Mirny base. QSL to home call.

* GU/PA3GIO will be active from the Isle of Man on 5-17 July on SSB only. QSL to home call.

* There are unconfirmed rumors that Scarborough Reef, now a new country for DXCC, will be activated in October this year.

* Kin-Men Island (Quemoy AS-102) will be active from 26 to 29 July with the call BO0K and BO0KS. QSL via BV2KI.

* Frank DL5PV/HI7 is active on 17, 20 and 30 metres. QSL via home call.

* Jaan SM0OEK, who is now active as 9M2JJ, is thinking about going to Pulau Layang, one of the Spratly Islands claimed by Malaysia.

* Bill VK4FW reported that Lionel VK6LA was active from Cocos-Keeling as from 1 June 1996 for about 3-4 weeks. The TE33 Yagi which VK9CT used was left behind for Lionel, who will make additional dipoles for the low bands QSL to VK6LA.

* Felix DL8OBC and Matthias DL4OCL will be active from Gozo Island from 22 July to 9 August, using the callsigns 9H3UD and 9H3UF. QSLs to their home call.

* There will be a number of French and German amateurs operating from Lichtenstein with the HB0 prefix from 13 to 27 July.

* The JA1UT/JA3UB group is planning another visit to Palestine in late June, early July.

* Kyoko is back in Nepal until July using the callsign 9N1KY.

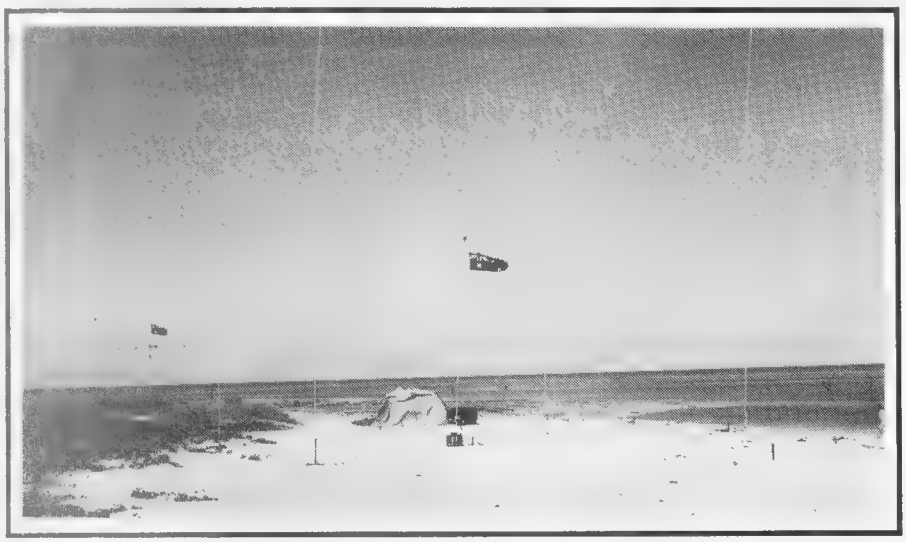
* DA4RG is currently staying in the Falklands using the call VP8BPX. QSL via the Bureau to DA4RG or direct to GW8VHI.

* SV1CID and SV1DPL will be active on the traditional bands from Crete SV9 and a variety of islands in the Aegean Sea.

* DL4XS, DL6ET and DL3KDV will be active from 22 August to 4 September on all bands from Comoros, D6.

* JG8NQJ/JD1 will be active for three months from Minami Torishima starting 15 July.

* John NL7TB has reported that the DXpedition to Barren Island will start on 4 July for four days. This will be new IOTA reference number.



Overview of VK6ISL. In the centre is Dave's tent, at left rear is Mal's tent, and in the foreground is the four element Four Square 40 m vertical array.

Interesting QSOs and QSL Information

* VK9WG – Graham – 14227 – SSB – 0617 – Apr (E). QSL via the Bureau or to VK5GW G J Whiteside, 33 Maud St, Unley, SA, 5061.

* V44BK – Karl – 7189 – SSB – 0737 – Apr (E). QSL to Karl D Sage, PO Box 549, Charlestown, Nevis Isl, Carribbean.

* FT5WE – Stan – 14164 – SSB – 0526 – Apr (E). QSL to F5GTW Claude Touyeras, 23 Rue des Chardonnais, Cite de la Diete, F-86130, Jaunay Clan, France.

* 3DA0AC – Horace – 14164 – SSB – 0521 – May (E). QSL to Horace F Long, PO Box 107, Mbabane, Swaziland, Africa.

* R1FJX/FJL – 7003 – CW – 1345 – May (E). QSL to collection point, DF7RX Bernhard Steibl, Kehlheimwinzer Str 40, D-93309, Kehlheim, Germany.

* V33BB – Tom – 7190 – SSB – 0704 – May (E). QSL to The Manager, Box 326, Monkey Town, Belize.

* 7Q7DC – Don – 14162 – 0550 – May (E). QSL via WA6IJX, Robert A Cerasuolo, PO Box 685, Holbrok, AZ-86025, USA.

* C91CB – Dan – 14170 – SSB – 0537 – May (E). QSL to Dan Swedberg Box 4161, Maputo, Mozambique, Africa.

* ZS8IR – Chris – 14185 – SSB- 0728 – May (E). QSL via ZS6EZ, Chris R Burger, PO Box 4485, Pretoria, 0001, Republic of South Africa.

* V63NN – 14006 – CW – 2358 – May (E). QSL via JA7FWR Hiromi Hatazawa, 3-4-27, Chuu, Dohri, Morioka, Iwate 020, Japan.

* PJ2MI – Jose – 7190 – SSB – 0705 – May(E). QSL to J Cyntje, Daphneweg 31, Curacao, Netherland Antilles, South America.

* FT5WF – Jack – 14164 – SSB – 0548 – May(E). QSL via F51ZK Andre Loiseau, Ecole De Garrabet, F-09400, Garrabet, France.

From Here, There and Everywhere

* Bill VK4FW, who is the Secretary/Manager of his Oceania DX Group, reports, on his return from Cocos-Keeling, that the group made approximately 11,200 QSOs on all bands except 160 m. Conditions were not ideal, and there were times, due to bad propagation, that only one station was active. Bill was extremely disappointed about the overcrowding on the

80 m "DX Window", which left practically no space for his activity. Bill also reports that cards which were sent to VK9CT via VK4FW/VK4CRR callbook addresses will be redirected to the ODXG PO Address and there is no need to re-QSL. Cards for the 1988 activity of AX9NKG and VK9NKG are now avaible from ODXG which has the logs. Bill also hopes to get the logs of VK0DM's 1974 Macquarie Island activity soon. The Group's new postal address is ODXG, PO Box 929, Gympie, QLD, 4570.

* The ARRL DXCC Yearbook for 1995 has arrived. Unless you are already on the Honour Roll, or unless you have increased the status of your existing award, your callsign is not in the book. Please note that the current number of countries at 30 September 1995 was 326. Here are a few interesting statistics regarding the VK callsigns. Mixed: VK5WO 361; VK6HD 351; VK2FH 335; VK3DYL 331; VK3EW 331; VK9NL 331; VK9NS 331; VK1DH 330; VK5QW 329; VK3AKK 320. Phone: VK6RU 379; VK5MS 377; VK4LC 364; VK5WO 358; VK6HD 350; VK3DYL 331; VK9NL 331; VK9NS 331; VK1ZL 329; VK3SX 328; VK2DTH 321. CW: VK6DH 331; VK9NS 331; VK9NL 330; VK1HD 258; VK1FF 147; VK4ICU 141. 160 m. VK6HD 165. 80 m. VK9NS 222. 40 m. VK9NS 276.

* The special event station celebrating the 131st anniversary of the ITU, AX2ITU, despite poor propagation and only four operators, made a total of 330 contacts on CW, SSB, 2 m FM and packet in a 24 hour activity on 17 May.

* The Japanese group, Atsu VK2BEX, Ken VK2IAZ and Chris VK2FHY made 1514 QSOs with 52 countries during their short stay on Broughton Island OC-212.

* The ARRL Awards committee has decided not to make any changes in the status of Mount Athos on the DXCC countries list.

* Frank YJ8AA, QSL Manager for Vanuatu, sent me a little note about pirate activity with the Vanuatu callsign. He says, *"As QSL Manager here in Vanuatu, I see quite a lot of cards, a lot of which I can do nothing about. If anyone worked any of the following list of stations during 1995, or so far this year, I am sorry to inform them that they are all pirates. YJ3HW, YJ1A, YJ1VL, YJ2WF, YJ3HO, YJ7KM, YJ8A, YJ8DA and YJ9ALS. For a lot of YJ0s, we have no QSL routes as they were visiting yachts, and never worked stations ashore. Most of the cards came from VK and referred to a CW contact."*

* Ray G3NOM, one of the operators of the October 1995 activity from Myanmar under the callsign XT1HT, was kind enough to send me a log extract of the VK and ZL callsigns worked by them. If you are in doubt as to whether you are in the log or not, drop me a note with a stamped, reply envelope and details of the QSO, and I will check the list.

* In the June issue of my column, the QSL Manager for FT5WE was shown as F5GWT. This information is incorrect and I tender my apologies all around. The correct QSL Manager is F5GTW Claude Touyeras, 23 Rue De Chardonnais, Cite de la Diete, F-86130, Jaunay Clan, France.

* The Kermadec Island activity, ZL8RI, produced a total of 33,897 QSOs, of which 41% were CW, 53% SSB, and RTTY 6%.

* The QSL Manager for the Indonesian special event station 8A5ITU is YC5BLG M Swid, Wisma Pasar Putih E 11, Tabing, Box 137, Padang, 25171, Indonesia.

* Don G3XTT reports that the provincial border lines in South Africa have been redefined. The number of current provinces is nine (old Transvaal has been divided into two parts), and it is possible that the ZS1-ZS9 prefixes will be issued to them, while all the South African Islands (Marion and Prince Edward included) should use the ZS0 prefix.

* The FCC has started issuing callsigns with the new NP3 prefix

* British Club stations in the future will be allowed to use special 1x1 and 2x1 callsigns in certain international contests from this year. Fifty two callsigns are available each year from G*6A-Z and M*6A-Z. The first contest in which these callsigns will appear, will be the IARU Championships on 13-14 July.

* Steve Salmon AA6LF has been operating as VK4ALF from a number of Queensland Islands. QSL via AA6BB.

* The Tunisian station 3V8BB is allowed to operate with 100 watts only, on CW, RTTY and SSB, and only on the following bands 10, 15, 20, 40, 80 and 160 metres.

* Rudi DK7NP has announced the birth of the German DX Foundation (GDXF) which has been established by a group of 12 German DXers. Further information from Rudi, who is the secretary of the Foundation.

QSLs Received

9Q2L (PA3DMH); T77BL (T70A); 4X/3000/4X1BD (4X1BD); BV9P (4w KU9C); XR0Y (3w WA3HUP); ZL9GD (10w op); XY1HT (4w G3NOM).

Thank You

Many thanks to all those who supply me with news and other information. Special thanks go to VK2XH, VK2IAZ, VK2KFU, VK2TJF, VK4FW, VK5WO, VK6LC, YJ8AA, ARRL DX Desk, and the publications *QRZ DX, The DX Bulletin, The DX News Sheet, The DX News Magazine, 425 DX News, and Go List QSL Managers List.*

*PO Box 93, Dural NSW 2158
ar

Over to You – Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Young Achievers

Recently two young members of the Hervey Bay Amateur Radio Club sat for the CW Section of the AOCP. They decided to bypass the Novice and attempt the Unrestricted licence qualification. History can be a good teacher. They had often heard their father talk of cyclone "Tracey" and emergency communications and so an interest was kindled. Their father, John, is not and was not an amateur; however, he was involved with communications in Darwin at that devastating time in history. As a result, son Daniel, 15, and daughter Deborah, 10, decided some time ago to learn about radio and communications with an appreciation of what it could mean to them to become amateur radio operators.

For some time they had been listening to all sorts of communications on a short wave receiver and in June this year started to learn Morse code. The objective was 15 wpm, yes, 15 wpm! Under dad's supervision they dedicated themselves to about half an hour each day when all other chores like school work, etc had been completed. Everything was all systems go and in just over three months they were ready for the examinations.

For several reasons we had to change the exam date a couple of times and not until 14 October could we determine the youngsters' ability. The big day finally arrived and, at the club shack with the door closed, we started off with transmitting. In turn, each candidate pounded brass (I've heard that somewhere before!) and the tape rolled on. I looked at the other examiner, he looked at me, and at the same time we both cracked a smile. Here were two young 'uns, who had started learning in June this year, cruising along sending Morse at between 14 to 15 words per minute.

As for receiving, well, what can I say. Afterwards they both commented, "it was a bit slow". Enough said! That wonderful smile from Deborah (we nicknamed her "shorty"

The Hervey Bay "young achievers", Daniel, 15 and sister Deborah, 10.

because her head was just above desk level) and the grin from brother Daniel said it all.

We had to wait for official confirmation which came through very quickly indeed. However, we were pleased to give them both provisional passes in both transmitting and receiving. Perhaps it was natural ability, although attitude and dedication had something to do with the results; also, encouragement from mum and dad was no small contributing factor to success. If they continue to learn in the way they have started they will become very good amateur radio operators and a future in their chosen field is indeed assured. We wish them well.

Ted Watson VK4OW
Box 829 Hervey Bay QLD 4655

A Story of HF DF

The *HF DF* article by VK6HC in the March 1996 issue of *Amateur Radio* brought back some memories as I used that facility on a number of occasions. In particular, I would like to tell one story where it failed and up to six deaths could have resulted.

I was a WT/OP with No 2 Squadron at Laverton, Victoria during 1941 and our main job was to patrol Bass Strait when convoys of soldiers were leaving by ship for the Middle East. Three Lockheed Hudsons would be sent to Mallacoota airstrip (eastern Victoria), three to Mt Gambier (SA), and the section in between was covered by the Laverton base.

On this occasion I was at Mt Gambier and we patrolled Bass Strait looking for submarines or hostile ships. This was fairly boring as there was radio silence and it meant flying up and down our convoy for as long as our fuel would last, leaving sufficient to get back to base. *(Incidentally, the biggest convoy I ever saw on patrol consisted of the Queen Elizabeth, Queen Mary, Aquitania, Mauretania and the Ile de France with a tiny corvette or destroyer out in front.)*

When we reached the time limit of convoy patrol, and had been relieved by the next "kite", we turned for Mt Gambier just as a pea soup fog closed in. Skipper "Mick" asked for an HF DF bearing, and I called....and called....and called, but could not raise the HF DF station. I then took a bearing on an Adelaide commercial AM radio station and handed this to our second pilot/navigator (Kim) with an explanation about the problem with the HF DF station.

We arrived over the coast and, as Mick turned east, we narrowly missed another Hudson heading west. It was our first close call with death as we were close enough for me to recognise the pilot.

We found Mt Gambier through the fog and landed with just 15 minutes of fuel left. Our second close call.

Another Hudson came in without circling the aerodrome, landed and the motors stopped! He was out of fuel, could not even taxi to dispersal and had to be towed away. It was the craft we had missed earlier. The pilot decided we knew where we were going and turned back to our course.

An investigation revealed that "Sailor" (and he shall remain un-named), the operator on duty in the HF DF station, had gone to sleep and did not hear my calls. This would indicate that these stations should have been manned by two operators at all times, not, as was then the practice, of one on each eight hour shift.

Ed Dyring VK2ED
PO Box 3
Gosford NSW 2250

SEAnet and Beacons

SEAnet

The 24th SEAnet Convention will be held in Madras, India on 22-24 November 1996.

The brochures have finally turned up and I am sending one to you for information. Australia is frequently well represented at SEAnet Conventions and since this is the first one to be held in the Indian sub-continent the organisers are hoping for a good attendance.

Beacons

The 5-band IARU/NCDXF time-share Beacon program is proceeding well and the group in California is currently building more hardware. It is hoped to have a system up and running from VK6 before the end of this year.

The frequencies the system will use are 14.100, 18.110, 21,150, 24.930 and 28.200 MHz. LU4AA, YV5B, ZS6DN and 4X6TU are now on and may be audible in Melbourne from time to time.

David Rankin 9V1RH/VK3QV
PO Box 14
Pasir Panjang
Singapore 911121

(The SEAnet brochure may be seen at the Federal Office. Photocopies of registration forms can be provided. Ed)

Member's Opinion

I feel I must enclose a letter with my membership renewal fee this year after having attended the Victorian Division AGM for the first time in the three years since I have been a member. There are several concerns many of us share and I think WIA, its members and council should seriously address them over the next three years if amateur radio is to have a chance of surviving into the new millennium!

I am concerned about the number of hams who are not members of WIA. I think if the hobby is to survive it needs official representation and WIA's role should not be confused with that of a local radio club. Having joined the ARRL a few years ago before joining WIA and then, even more recently, renewing my RSGB membership which had lapsed since leaving the UK, I must say we are not doing enough here in VK land to plan for the future and encourage a wider membership. Let me provide more concrete proposals as I don't like moaning.

(i) The SMA licence fee, plus WIA membership, plus the cost of membership to one (preferably your local) radio club SHOULD ALL BE TIED TOGETHER in one package. I propose that the various levels of people involved should start the negotiation process. The idea is not just to

keep the cost down but to encourage active participation and, more importantly, the share of responsibilities at all levels.

(ii) That the WIA Divisional councils should invite as a matter of fact the attendance of ALL secretaries of all local radio clubs to their council meetings on a regular basis. If nothing else this ensures that council matters can be communicated down the line and that ideas, events and projects, etc can also be communicated upwards from the club membership.

(iii) I suggest the WIA should be sending older unwanted copies of *Amateur Radio* with an invitation brochure to each ham in the call book who is not a member of the WIA and inform them of the new package deal and ask them to reconsider. I understand that there were reasons why some of them have dropped out of membership but let's look at the statistics and see how many hams there are in the call book who are not WIA members.

(iv) I suggest we offer WIA scholarships and bursaries to the younger lads who have received top grades in year 12 for entry into Electrical Engineering or Physics or any discipline where wireless is a major component at university. I know the RSGB has such an award. I suggest we send to all schools, university departments, boy scouts and other youth groups a brochure about amateur radio and arrange for public demonstrations at the local club level on the proposed NATIONAL AMATEUR RADIO day.

(v) Finally we should invite professionals to be honorary members. I know that in the States they have senators, distinguished professors, and Nobel Laureates who are hams. There are many professional engineers, physicists, chemists, doctors, lawyers, etc, some of whom already are hams. Not long after I got my ticket here one of the people I spoke with on the air was a medical GP; unfortunately, as far as I know, he is not a member of any radio club or the WIA. Perhaps a brochure to the various institutes of engineers, physicists, medical associations, etc. Many of these bodies share the same problems as the WIA; not enough kids who aspire to succeed in their professions either. The support of some of these people with appropriate contacts is important to the hobby. I know that the RSGB has Prince Philip as the patron. Incidentally, regardless of one's feelings towards the monarch, he wrote an excellent foreword to the RSGB handbook as well as being for years a patron of the IERE.

I wish to present these points to all WIA members for discussion. I think as hams we have a responsibility to the hobby, to the future generations and to the wider community. Being in the educational profession myself I am aware that already too much harm has been done by governments and political parties who can see no further than three years in their policies. Can we as members of the WIA see beyond that?

Dr T C Choy VK3CCA
Senior Lecturer in Physics
Department of Physics
Monash University
Clayton VIC 3168
ar

Packet World

*Grant Willis VK5ZWI**

Introduction

There has been a lot of good feedback to the last few amateur *Packet World* columns and I hope that they have helped people get a better understanding of how packet radio works and a bit of an insight into some of the networking systems used on packet radio. In future columns I hope to present a "Mugs Guide" to using Rose and NET/ROM networks, including examples from real networks to help people get the most out of their local packet systems.

This month, I will take a look at what is becoming a rather popular terminal program for packet radio use called TSTHost. There are many people around the country using this program and, in my opinion, it has some features that many of the other terminal programs would do well to emulate.

TSTHost Hardware Requirements

TSTHost is written by IK1GKJ for DOS based PCs and requires a TNC capable of running the WA8DED or TF8, TF23, TF24, etc Host Mode software in the TNC. The other option for running TSTHost is to place your TNC into KISS mode, and then use another piece of driver software to convert between the Host Mode protocols that the TSTHost program wants, and the KISS protocols the TNC wants. A common piece of driver software is TFPCX. TSTHost will also work with a Baycom or similar style modem using the TFPCX driver software. I have successfully had TSTHost running on a PK87 TNC running KISS mode using the TFPCX driver software on machines ranging from an XT to a 486DX. I have also run it under Windows 3.1 successfully in a DOS Window.

TSTHost Capabilities

What are some of the things that TSTHost is capable of, you might ask? When you first start it up, you are presented with a split screen display showing two status lines on the bottom of the screen, three lines for sending text and commands, a connect channel status bar, and a monitor window.

The TSTHost program is capable of eight simultaneous multiple connects, all kept within separate windows. These windows are selected using function keys F1 through F8. Channel 8 is dual purpose, able to be used for either user initiated connections or automatic

HOST Mode

A mode where the TNC interacts more directly with the computer than the normal command mode most TNCs provide to terminal programs (command mode provides basic ASCII serial communications to any "dumb terminal program" that only knows how to talk ASCII). There is little control over the data flow between a TNC and the computer in command mode, other than the RTS/CTS/DTR lines in the RS-232 cable, or the software flow control XON/XOFF. HOST mode, on the other hand, puts the control of data to and from the TNC solely in the hands of the host computer. The host computer "polls" the TNC for each frame of data to be transferred, so that the TNC can't send or receive data to/from the main computer unless the computer tells it to. Framing and transmission control of packets in HOST mode is still controlled by the TNC, unlike KISS mode where even these functions are taken back into the PC.

KISS Mode

A mode where all the packet framing control is handled by the PC. This relegates the TNC to nothing more than an HDLC Converter and transmitter PTT controller, with all higher level AX.25 functions handled in the computer. KISS mode applications are commonly found in the TCP/IP programs such as NOS.

TSTHost Monitoring Window

```
fm VK5TTY to FBB ctl UI pid F0 len=223
223830  B     6586 KEPS @AMSAT VK4GRC 960601 2Line Orbital Elements 152.AMSAT
223831  #
223832  B     3729 NOCODE@WW PE1PTP 960601 Ban Morse! (well almost)
223833  B     3072 EME @WW IK4WLV 960601 OCEANIA EME SKED WANTED
fm VK5TTY to VK5KMG-5 ctl RR0+
fm VK5ZTV to VK5TTY ctl RR7+
fm VK5TTY to VK5KMG-5 ctl I03^ pid F0 len=030
 PLEASE NOTE FREQUENCY CHANGE
fm VK5TTY to VK5KMG-5 ctl I04^ pid F0 len=250
WIA re-broadcast on Monday nights. 7.30 pm on 3.585MHz & VK5RSV – 146.675
```

```
fm VK5TTY to VK5KMG-5 ctl I05+ pid F0 len=022
VK5TTY BBS 07:52 21>
fm VK5ZTV to VK5TTY ctl RR6+
fm VK5TTY to VK5KMG-5 ctl RR6+
```

mail forwarding. F9 will take you to the monitor only screen, so you can see what other traffic is on the channel at the same time. It is also possible to monitor channel traffic through a small five line monitor window displayed simultaneously at the top of each connect window. The F10 key toggles the user between "command" and "converse" mode. In TSTHost, "command" mode lets the user type in commands that are acted upon by TSTHost, while "converse" mode will transfer anything typed to the connection in progress on the radio channel.

The TSTHost program has true multi-tasking in-built and is able to handle multiple connections as well as mail forwarding, all simultaneously. While doing all of this, it is also able to continue monitoring the message list broadcasts that many FBB BBS system send, so that, unlike TPK, message lists are not missed while connected, forwarding or doing some other internal task etc.

The latest version, v1.42B, has full support for BBS automatic mail access and Hierarchical Addressing. This allows users to set up TSTHost to monitor the message headers broadcast by your local BBS, and then automatically select your personal messages and any bulletin categories you pick for download. TSTHost can then automatically connect to the BBS and retrieve the requested messages in a compressed mode connection, reducing the amount of time you need to be connected to the BBS to retrieve the data you want, compared with connecting using a text only based terminal program. You can send and receive both bulletins and personal messages using the program.

TSTHost also has an extensive Macro language capability, allowing users to program their own functions, which can be linked to various function key combinations. The program also allows for password protected BBS systems and has the ability to decode passwords automatically on connect if required.

One of the things that is a little disconcerting at first is the lack of detailed on-line help information. Issuing the help or ? commands only prints a list of available commands. To find out help about each command, you need to read the manual. Some commands with sub-menus (like the UList command which controls the setup of the BBS Message List Retrieval control system) will prompt you with sub-menus if you just enter the command. I recommend that people read the manual and play a bit with the program to get the feel for how the command line commands work. They are not difficult to use once you are used to them, but learning them may take a little time. There are also abbreviations for some of the commands via ALT+[letter] commands (eg the MailCopy command when displaying the message lists is also available as Alt-M).

Basic Configuration

The basic configuration file required to be set up before you put TSTHost on air is called TSTHOST.CFG. This file sets your callsign and Home BBS parameters. An example of how to set this file up using the TFPCX software and a KISS TNC is included for your reference. This is not by any means the only way to set up the program, but it is one way which I have used that works.

The key elements of the config program are the "AX25" commands, which define the radio timing parameters your station will use; the directory setups, which instruct TSTHost as to where everything is kept; and the PMS and Unproto setup section which defines your home BBS parameters (where you will send and receive automatic messages) and how to handle the unproto message lists from your home BBS station.

The configuration will depend on your local circumstances, and it is possible to set up TSTHost to access unproto lists over digipeated connections if required.

TSTHOST.CFG

```
# TSTHOST CONFIGURATION FILE EXAMPLE
# BEFORE USE, SET UP YOUR PARAMETERS
#
# setup tnc interface
#
AX25    DIGIPEAT     OFF
AX25    MAXFRAME     5
AX25    FRACK        500
AX25    VALIDCALL    OFF
AX25    MYCALL       VK5ZWI-1
AX25    RETRY        15
AX25    MONITOR      UISC
AX25    PERSIST      64
AX25    RESPTIME     200
AX25    TXDELAY      40
AX25    UNPROTO      BEACON
AX25    USERS        8
AX25    BEACON       0
AX25    PORTCALL     7 VK5ZWI
AX25    PORTCALL     8 VK5ZWI-12
#
# setup work directory
#
USERDIR   E: \RADIO \TSTHOST \USERS
WORKDIR   E: \RADIO \TSTHOST
#
# setup pms section
#
HOMEBBS       VK5TTY
ENDMESSAGE    E:\RADIO\TSTHOST\LOGO.TXT
FTIME         30
FREVERSE      OFF
RLINE         OFF
HIERADDR      OFF
#
# setup unproto section
#
ULIST ENABLE
ULIST AUTOSELECT +VK5ZWI+WIA+@ADELAN
ULIST TIME 30
ULIST PMSG ON
ULIST QUERY
#
# other setup
#
AUTOYAPP ON
LOG OFF
SCREENSAVE 5
MPERM ON
```

To start running TSTHost, you need to use a number of command line switches to tell the program what type of TNC it is working to. These are spelt out in the documentation. An example of a batch file I use on my own station to work TSTHOST with TFPCX in 43 line VGA mode is given elsewhere in this column.

There are a number of other configuration files that the user should also familiarise themselves with. These are TSTHOST.CRN, which controls the timed execution of various commands (like controlling the times when the operator will accept page requests from remote users); TSTHOST.SYS which controls what access levels remote users can

TST.BAT used by VK5ZWI:

```
rem TST.BAT file for TSTHost in KISS mode via
rem the TFPCX driver.
rem
rem Load TFPCX
tfpcx -PKISS2 -B9600
rem
rem Load tsthost with TFPCX on Interupt 253
tsthost /T /I253 /VGA
rem
rem When closing TSTHost, unload TFPCX driver
tfpcx -u
rem end
```

have to your PC; TSTHOST.PSW which sets up your password access requirements for BBS stations; and TSTHOST.SHD which defines what commands are sent to your TNC program when you exit TSTHost.

Operating the TSTHost PMS

Some tips for new users of TSTHost trying to find their way around the program in the PMS area might be useful. Once you have the BBS Message Header capturing working, you are going to want to view the headers and tag or un-tag messages you want to download. The method of doing this is to hit "Alt-F6", which will bring up the message header listing. You can then move around the list using the up and down arrow keys as well as "page up" and "page down". To select or un-select a particular message, just press the space bar.

To list and read messages that have been captured, the commands are similar to those on the BBS stations. Typing "LM" on a channel in TSTHost command mode will bring up a list of messages that have been downloaded addressed to you. Typing "L" will bring up a list of all messages that have been downloaded. Positioning the highlighted bar over a message and hitting enter will allow you to read that message, and "Alt-K" will kill the message once read.

Another useful tip for managing your PMS system is to use the TSTHOST.CRN file to perform a mail clean-up every hour using the UPdatedms command. This way you can prevent the PMS from filling up your hard disk with all the messages you download.

One other tip that gets people caught is how to talk to someone keyboard to keyboard who connects to your station. Normally, when you connect to someone running TSTHost you are automatically given access to their PMS system. The user who connected can then use the T command (T for Talk) and page the local operator to come to the keyboard (this makes your PC sound some chimes). For the local operator to actually start a conversation, they must switch to the channel that the user connected to, and then with TSTHost in command mode type "TALK<Enter>". You will then by-pass the PMS and be able to have a keyboard conversation. Once you have finished your conversation, you can go back to command mode and type "PMS<Enter>" to return the remote user to your PMS.

Finally, a fairly important tip for the program. If you are using the unproto list features of the software, always shut the program down by typing "exit<enter>" in command mode. The reason for this is that the software doesn't automatically write the most recently received BBS Message List headers immediately to disk. If you shut down by some other means (eg, the reset button on your PC) you will loose the headers you have captured, and if you have already downloaded some messages from the headers you had captured, you might download the same message twice from the BBS!

Other Features of TSTHost

TSTHost has many other features as well. It is possible to run local "server" programs (similar to the REQFIL and REQDIR servers found on full BBS stations) as well as user accessible programs through "PG" commands (see the manuals for more details on these). These types of functions are very similar to those found on the FBB BBS systems.

Another popular function has been the ability for users to have 7-Plus ASCII encoded binary files automatically decoded by TSTHost when they are downloaded. Overall, TSTHost is packed with features that make it quite a nice terminal program to use on the current packet radio network architecture. If you want a copy of the TSTHost program, try contacting your local friends, or otherwise look on one of the major amateur radio telephone BBS systems or on the Internet in ftp.funet.fi in the hamradio area. Unfortunately, I don't have the time to assist in distribution of the software but, as it is freeware to amateur radio operators, there are many places where it can be obtained.

Conclusion

TSTHost is, in my opinion, one of the better terminal programs around at present. Its ability to use native host mode gives it multi-tasking capabilities I have, to date, only seen in the major BBS programs like F6FBB and AA4RE. Terminal programs are, however, an area that very much depends on personal preference and everyone should use programs that they are happy and confident with. I hope that this month's column has given at least some of you some ideas to go away and try.

Next month, I will take a look at some ways to navigate a NET/ROM network.

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

E L J (Blue)	AKED	VK2AEU
H (Harry)	CAPSEY	VK2OQ
G W (Gordon)	DENNIS	VK3TF
W J (John)	MATTHEWS	VK3WJ
R (Rex)	SHILTON	VK4CAG
R G (Ron)	WRIGHT	VK4WRG
A G	LATHWELL	VK6AL
N F (Norm)	ODGERS	VK6NF

Harry Capsey VK2OQ (Ocean Queen)

Harry Capsey was born in England in 1906, came to Australia with his family in 1914 and lived in the Redfern Newtown Area. His father returned to England and enlisted in the Armed forces in World War I. During this period his mother bought a place in Brighton. In 1944 Harry married and in 1947 he and his wife moved to Chester Hill. Harry lived a very active life, designing and building most of his amateur equipment.

He was well known on the air as "two Ocean Queen" and respected for his knowledge of amateur radio. He worked in AWA Radio Communications and played a major role in transmitting the first two-way radio signal across Sydney Harbour. During the 1939-1945 World War, he was involved in teaching the civilian forces the use of Morse code. His other hobbies were photography and printing in water colours.

He was a French polisher by trade and all his home brew gear finished up being french polished. Harry and his wife travelled extensively in Australia and in later years his wife drove the car and Harry was the radio operator. He received his amateur licence in 1939 and after the war was very active on the HF bands. He later developed a love of 2 m.

He was active until his death, using an FT7 transceiver and a long wire, as well as 2 m. He passed away on 27 April in Nepean Hospital. Harry VK2OQ will be sadly missed on the air. **H R Chapman VK2BHC**

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Spotlight on SWLing

*Robin L Harwood VK7RH**

On the 19th of this month, the Centenary Olympic Games will be commencing at Atlanta, Georgia and continuing until 4 August. As you would be aware, there will be extensive coverage of this sporting event and shortwave broadcasters have also scheduled programming live from Atlanta. The BBC World Service, which probably has the biggest worldwide audience, will have their own studio facilities in Atlanta sending out live programming plus frequent updates. The VOA will also be doing likewise, although it is on their home turf. So, expect saturation coverage on shortwave of the 25th Olympiad.

Also this month, the first of the two major political conventions, where candidates are chosen to run for the US presidency and the party platform is enunciated. Previous conventions were very interesting to listen to but, as the major American domestic networks have cut back their coverage, it is not possible to get an in-depth look at what is happening, particularly as the candidates for the top job have already been decided prior to the event. However, the VOA in Washington remains the only source of live coverage of the complete Conventions, which they will be doing in English and other language blocks.

At the end of May, Israel also elected a new leader in Benjamin Netanyahu, whose political philosophies were different from that of Shimon Peres, the previous incumbent. The major difference was in relation to the Middle East peace process and there has been considerable worldwide debate as to what is going to happen next. I, along with thousands of shortwave listeners, have tried to hear Kol Israel in Jerusalem with their 7 am (0400z) English news bulletin but they have made an extremely bad frequency selection. 9435 kHz is a mess as the VOA is also broadcasting there at the same time from Kavala in Greece. They are in Farsi, which is the lingua franca of Iran.

The parallel channel for the morning news was 7460 kHz but it, too, suffered severe side-splatter from Radio Norway/Denmark five kilohertz up. However, they have since moved to 7520 kHz because of the QRM from Kol Israel. I believe that there is a frequency to Australasia higher up but I have not found it yet, as Jerusalem's morning news gives a good insight into what is happening within Israel.

There was speculation in a recent *Sydney Morning Herald* that serious consideration was being given to axing Radio Australia as part of the budgetary cost-cutting moves within the ABC. Nothing further was heard about this, although I believe that 15 staff at the ABC external service were made redundant as part of the announced restructuring in the Corporation. Just a few months back, Radio Canada International was looking at also closing down permanently, yet, as a result of the domestic and worldwide outcry from its loyal listeners, funding has been found to continue for another 12 months.

However, its future is not completely assured, according to an e-mail I received directly from RCI in Montreal. I quote from it: *"The (Canadian) government has not guaranteed any long term funding, has not authorized a separate budget nor has it really committed Canada to having a permanent international radio service."*

There is an ad hoc group known as The Coalition to Restore Full RCI Funding which is drawn from RCI staff and others outside, wanting a clear statement from the government as to the future of Canada's external voice, with a separate protected budget, to guarantee on-going funding. The e-mail continues: *"We feel the service should be restored to at least its 1990/91 levels, bringing back language sections such as the German and Japanese services, and restoring targeted English and French programming for different geographic areas such as Europe, Africa, Asia, etc."* These proposals are not catered for in the present funding package.

A similar situation could arise here in Australia, with the Federal Government seeking to cut back on the budget deficit and prune perceived waste and inefficiency in the public sector. Already RA's Carnarvon relay site in WA has permanently closed and the senders re-located to Darwin and Shepparton. RA has a significant impact in the Pacific and in SE Asia, while the audience has diminished in Europe and North America. However, if the English programming was completely axed, I would expect that there would be an outcry, particularly from the expatriate community, who are already dissatisfied with the coverage of home news and sport, particularly in the Old World. A criticism I have heard is that RA's news and current affairs is heavily biased in favour of Asia and the Pacific.

And while we are on cutbacks, news has just come to hand that South Africa is also to end its broadcasts on shortwave under the "Channel Africa" format. The only external service from South Africa solely targeted that continent. The parent organisation, the SABC, is looking to see if it is viable to re-introduce broadcasts on shortwave to other regions or scrap it altogether. Shortwave relays of the domestic networks will continue but are not often heard here.

Just to correct one minor typographical error in last month's issue, the correct address of the Southern Cross DX Club is GPO Box 1487, Adelaide SA 5001. Well, that is all for now. Hope that your winter listening is rewarding.

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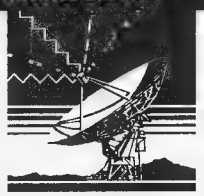

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QSLs from the WIA Collection

Ken Matchett VK3TL Honorary Curator WIA QSL Collection*

The value of first hand original documentation can never be over-estimated. We have all been aware of errors in articles, particularly those that refer to the dates of past events. The reason is that a high percentage of the reference material used in the compilation of the articles has itself been written not from original sources but from other articles. This is understandable, since researching of original sources takes an appreciable time. The WIA Collection, in its own way, is a very valuable source of historical data from the field of amateur radio, in particular the history of DXing. DXing, as we know, does not interest everyone (there are many other aspects of amateur radio), but it is, nevertheless, an important one. Not only do our QSL cards give first-hand information on DX communication since the early 20s, but the information given about the equipment used is of particular interest to the radio historian.

Most readers will be aware of possibly the most significant event in the field of amateur radio communication, that is the two-way radio contact between Leon Deloy of France, F8AB, and Fred Schnell and John Reinartz, 1XAM, on the night of 27 November 1923. This was the first trans-Atlantic QSO by amateur stations and it opened up the world to long distance communication. Our collection is indeed very fortunate to possess one of Deloy's own QSL cards signed by him for a QSO with the famous English experimenter W E F (Bill) Corsham G2UV only a few months after that historic event. As if this were not enough, the collection has both a signed QSL of Bill Corsham's and one from Reinartz himself (1-XAM/1QP). These extremely valuable cards were donated to the collection by Bill Hall VK2XT of Toronto, NSW. Bill Corsham G2UV was a winner in the trans-Atlantic tests of 1921 from Britain, and became a radio enthusiast as early as 1913.

On 19 October 1924 the first two-way radio contact on the amateur bands took place between New Zealand and Great Britain. The NZ operator was Frank Bell Z4AA of Dunedin and he contacted Cecil Goyder G2SZ of London. Our collection contains a QSL of Z4AA dated 17 February 1923, not long before this historic contact, and another one dated 15 November 1924, which was one month later. On Bell's 1924 QSL he states that he was the first NZ station to contact Australia and the first Australasian station to QSO North America and Europe. He used a 90 foot vertical cage antenna with a small fan counterpoise. The collection contains one of Goyder's QSLs on which he mentions the success of this station in the old 200 metre tests of 1923-4. It will be seen that, as well as a record of radio contact throughout the world in the early days of radio, the QSL cards themselves give a fine record of the antennas, equipment and power used in establishing such contacts. It is fascinating to look back and find details of spark gaps, early detectors, headphones and antennas as well as modulation, amplification and oscillator details.

The oldest QSL in the collection is that of 9DBU, which is hand-written and dated 20 May 1921, originating from Eden, Illinois. A typical station of the time might use a De Forest tuner, Baldwin phones and a 600 ohm loud speaker horn, the transmitter a Thor 1 kW with Spark Gap as on a QSL of 6IG from Arizona.

In the large Commemorative and Special Issue section of the collection may be found thousands of QSLs that commemorate many of the historic events that have taken place in many countries. Space will not permit mention of more than just a few: VI88ACT (Australia's Bicentenary), GB3BBC (50th anniversary of the BBC), TM6JUN from France (celebrating the June 1944 Normandy landing), RG6C from the former USSR (celebrating Yuri Gagarin's epic space journey), W200RR (celebrating the Bicentennial of the American Constitution), and VI50PEACE (Australia's celebration of the end of World War 2 fifty years ago).

Changes in a country's callsign prefix will often reflect important changes in its political status, the most important being the gaining of independence from colonial rule. Such countries gave up their old prefixes for new ones allotted by the ITU. The long list includes Nauru (VK9 to C21), Sri Lanka (Ceylon VS7 to Sri Lanka 4S7), British Guiana (VP3) to Guyana (8R1), and so on.

The collection also contains a splendid pre-World War 2 QSL collection. It is interesting to note the changes in callsigns introduced throughout the years. Some of our earliest QSL cards indicate simply the initials of the operator. Cards of the mid-1920s show one or two letters that served to identify the country of origin. Examples are: C3CH (China), X9A (Mexico), Z4AR (NZ), and D4BEC (Germany). Still later, QSL cards show what was the "intermediate", a precursor of the modern system of prefix allocation introduced in 1929. These intermediates, introduced in 1927, consisted of two letters, one being the continent indicator, the other a letter representing a particular country. Examples are: OA6DA (Australia), EG2BCQ (England), NC2BE (Canada), and SB2AR (Brazil). Such QSLs are becoming extremely rare.

The collection lacks a QSL from Guglielmo Marconi but, no doubt, one did exist at one time in the form of a letter which confirmed his successful transmissions. We do, however, have the original QSL cards of several inventors, including those of Loren G (Windy) Windom W8GZ. His single feeder Hertz antenna became one of the most popular in the world. Reg Varney's QSL is here too; his G5RV was another successful antenna type. The attractive QSL of Carl E Mosley K0AXS/W0FQY, inventor of the famous trap antenna, the TA33, and that of Captain "Dick" Bird of G4ZU fame also find honoured places. Apart from the original QSL cards, several hundred QSLs commemorate the pioneer work of such men as Marconi, Ohm, Morse, Yagi, Hertz, Popov, Oersted and Siemens.

The QSL cards of our own inventors and experimenters are not lacking. The list is a long one, but one can mention Max Howden (3BQ) who won, using a home-built receiver, the trans-Pacific Tests of May 1923. Ross Hull (3JU) is said to be the first amateur to hear signals from the USA and was a pioneer in the VHF-UHF field as well as being the technical editor of the prestigious *QST* before his tragic death in September 1938. The QSLs of Alf Traeger 5AX, inventor of the pedal-wireless, are here as is the early QSL card with the callsign 8AB-8AC issued to the Australian Inland Mission. Vernon Kerr's signature appears on one of the collection's Flying Doctor's QSLs, VK8XT. He was the Assistant Station Operator at Cloncurry at the time. Early broadcasters are represented too. Charles Maclurcan VK2CM commenced transmitting in the days of spark from the roof of the Wentworth Hotel in Sydney. He used to broadcast music and entertainment on the commercial bands. Alf Maddick A3EF was also a successful broadcaster on Sunday afternoons and evenings as were a few present day members of the RAOTC.

A Campbell Drury's QSL VK3ACD was the first ever issued from Heard Island (April 1948). Wal Hannan's QSL VK2AXH is amongst the collection. He was the operator who made the first radio contact from Antarctica. The list goes on and on, but mention should be made of the surprising number of QSL cards issued from clubs before World War 2. Callsigns OA3MR

(Malvern), A3BC (Brighton 1926), 3XC (Xavier College 1926), 3RI (Railway Institute), A-3CR (Coburg 1925), are here, to name just a few.

There are, in the collection, a number of callsigns which may be unfamiliar, even to old-timers. Lay Cranch was issued with the one-letter suffix call VK3T. He never did have a QSL card of this call, but we do possess the original licence. The unusual Australia prefix VH3UX (later VK3UX) was an experimental station at Black Rock before the war.

Present day experimenters such as John Adcock AX3T and Dennis Sillett VL3Y have donated some of their unusual QSLs to the collection.

The above account has dealt with mainly the historical aspect of the QSL card, for therein probably lies its greatest value. However, it should be realised that the collection contains thousands of QSL cards of a thematic and pictorial nature, as well as rare DX QSL cards, many from famous DXpeditioners.

There are also other collections, including callsign prefixes (arguably the world's largest collection), DOK numbers, IOTA, US counties, NZ counties and branches, pre-war shortwave listeners and commercial station QSL cards, as well as an Australian pre-war and post-war collection containing the QSL cards of this country's active radio amateurs.

In closing, I would like to see more use made of the collection by writers of radio history. Photostat copies are available which are suitable for publication. Parts of the collection have been displayed publicly and any WIA member is welcome to inspect the collection by prior arrangement. I wish to thank all those old-timers who have done their share in saving something for the future.

The WIA would like to thank the following for their recent kind contribution to the collection: Robin VK6LK, Ivor VK3XB, Eric VK4XN, Keven 2E1AIU, Jim VK9NS, "Snow" VK3MR, Steve G0UIH, Jack VK3EK (ex VK3NOG), Mike VK6HD, Paul VK2KVY, Brian VK4LV, Tad VK3UX, Ossie VK3AHK, and Sydney VK6HE.

Also the friends and relatives of the following SKs: Bob Rowland VK3GR (courtesy of Stan VK3SE), A E (Bas) Carlyle VK3AUN, L R (Len) McIntyre VK3XF, Edgar Nicholls VK7RY (courtesy of Tom VK7BT), and George Baker VK2CGB

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Repeater Link

*Will McGhie VK6UU**

CTCSS Encoder

Following on from last month's *Repeater Link* on CTCSS, here is a circuit for a CTCSS encoder. I have the design for two encoders, one as featured this month, and an alternate design for next month.

I have played around with various low frequency oscillators in an attempt to produce a small, frequency stable and pure sine wave result. However, it is surprisingly difficult to produce a frequency stable design, due mainly to finding a temperature stable capacitor in the 1 µF range. The old green cap is fairly good but a bit large.

MKT

Along came the MKT range of capacitors available from many of the regular outlets. I obtained mine from Dick Smith Electronics. Placing a digital capacitance meter on a 1.5 µF MKT showed no significant change in capacitance after removing it from the freezer and heating it up to over 50° C using a hair dryer. These capacitors are a plastic dielectric type with very low leakage and about half the size of the old green cap. All round, a very good non-electrolytic capacitor.

The NE567

With an easily available capacitor with all the right requirements, now came the search for an oscillator design. I have used the NE567 frequency decoder chip as a CTCSS decoder and wondered how stable the internal oscillator is. Logic indicated it must be a stable design as this internal oscillator is the reference for decoding the incoming CTCSS tone. Why not use the decoder chip as an encoder? The internal oscillator is available on pins 5 and 6. Most of the NE567 would not be used, but one eight pin chip and a few components could be a simple CTCSS encoder.

Square Triangle

One small problem with the NE567 is that the oscillator signal on pins 5 and 6 is not a sine wave. Pin 5 is square wave and pin 6 is a triangular wave. A sine wave is essential for CTCSS encoding to prevent harmonics from being heard on the encoded audio. The oscillator signal would have to be filtered to produce a sine wave output. A narrow band-pass filter would limit the range over which the oscillator could be easily used. I decided to use a low pass filter, simply a three stage resistor capacitor filter.

NE567 Description

For those not familiar with the NE567, some explanation. The chip is a phase lock loop design. An internal oscillator is phase and frequency compared to the incoming CTCSS signal. If the CTCSS signal is within about a cycle or two, phase lock is obtained and the logic output on pin three goes from high to low. This logic output can then be used to un-mute the audio in your FM receiver or open a CTCSS repeater. The lock-up time and bandwidth is set by the values of C1 and C2 respectively. Lock-up time involves the VCO DC loop feedback path. The bigger the capacitor the longer the lock-up delay and the more reliable the decoder is. Bandwidth means how close the incoming CTCSS tone has to be to the internal oscillator frequency. The bigger the capacitor the narrower the bandwidth. However, all this is only background information and has little to do with the oscillator as used in this circuit.

The Circuit

With reference to the circuit diagram (Fig 1), the NE567 is connected as if used as a decoder, except for the input pin 3 and the logic output pin 8. The 20 k MT (multi turn) pot adjusts the frequency of the oscillator. This pot, in conjunction with the 1.5 µF MKT capacitor, determines the frequency of operation. The NE567 requires a regulated supply of five volts and the 78L05 is used to provide this. The oscillator output is taken from pin 6 which is the triangular output. This output has less harmonics than the square wave and therefore requires less filtering to produce a sine wave. The triangular wave form is then fed to the three stage low pass filter. The resulting output from this filter is a good sine wave.

The single transistor amplifier is required due to the loss in the three stage low pass filter. The input impedance of this amplifier is required to be high, and this is achieved by not bypassing the emitter resistor and a high value (10 M) bias resistor. Due to this high impedance input, any DC leakage through C9 upsets the operation of the transistor amplifier. Ordinary electrolytics will not work in this part of the circuit. Use an MKT capacitor as shown. The amplifier lifts the level to about two volts peak to peak at 123 Hz.

The output level of the transistor amplifier varies depending on the frequency that is applied to the three stage low pass filter. The

higher the frequency the smaller the output from the filter and hence the amplifier. This, however, is offset by the characteristics of the phase modulator in the FM transmitter. Higher frequency tones require less level to produce the same deviation as a lower tone. If your repeater uses direct frequency modulation then this offset is not the case, but the level output should be enough for most situations. If more level is required, simply add an extra stage of amplification after the output level control.

Note the transistor amplifier uses the 12 volt rail rather than the five volt regulated rail. This was done in order to provide slightly greater output from the amplifier.

Frequency Stability

The circuit as shown was designed to operate at 123 Hz to give about two volts peak to peak output. It can be adjusted to any CTCSS tone between 67 Hz and 250 Hz. The circuit board was placed in the freezer and dropped down to -10° C. The frozen board was then removed, power applied and a frequency counter connected. As the board rose to room temperature there was no change in the frequency of operation. The board was then slowly heated with a hair drier up to 50° C. There was also no change in the frequency of operation. My frequency counter can read to within 0.1 of a cycle. Allowing for the odd change of the last digit, the oscillator appears to be stable to within 0.1 of a cycle between below freezing and 50° C.

Where to Use

With few repeaters requiring a CTCSS signal for normal input operation, the circuit is presented in the hope of encouraging repeater managers to install CTCSS encode on their repeaters. This then allows users that are equipped with CTCSS decode to use this mode.

Many, if not most, two metre repeaters use the Philips FM828 as the basis for the repeater design. Where to inject the CTCSS tone into the repeater's transmitter depends on the exact design of the individual repeater. If the repeater uses the standard FM828 exciter board setup and the phase modulator, the CTCSS tone can be injected at P5 on the exciter board. An 18 k building out resistor is required to prevent loading of this part of the audio circuit. That is, from the 100 k output level control on the CTCSS board, place an 18 k resistor between the output wiper and P5 on the FM828 exciter board.

Set Up

The required deviation of the CTCSS tone on the repeater's transmission should be one tenth of the repeater's peak deviation. So, in a 5 kHz deviation system, the CTCSS tone should FM modulate the transmitter to 500 Hz deviation. Setting this up with limited equipment can be difficult. If all else fails, wind the level up from zero while listening on a hand-held or mobile that is in the CTCSS decode mode, until the CTCSS mute opens on the receiver. Perhaps wind the level up a little more to allow for less sensitive CTCSS decoders in other radios. If the CTCSS tone can be heard at an objectionable level on the repeater's transmission, the level is either too high or contains harmonics of the CTCSS tone.

Different Design

Next month a different design for a CTCSS encoder. The circuit is the standard phase shift oscillator and offers some interesting variations on the old design.

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VK6UU @ VK6BBR

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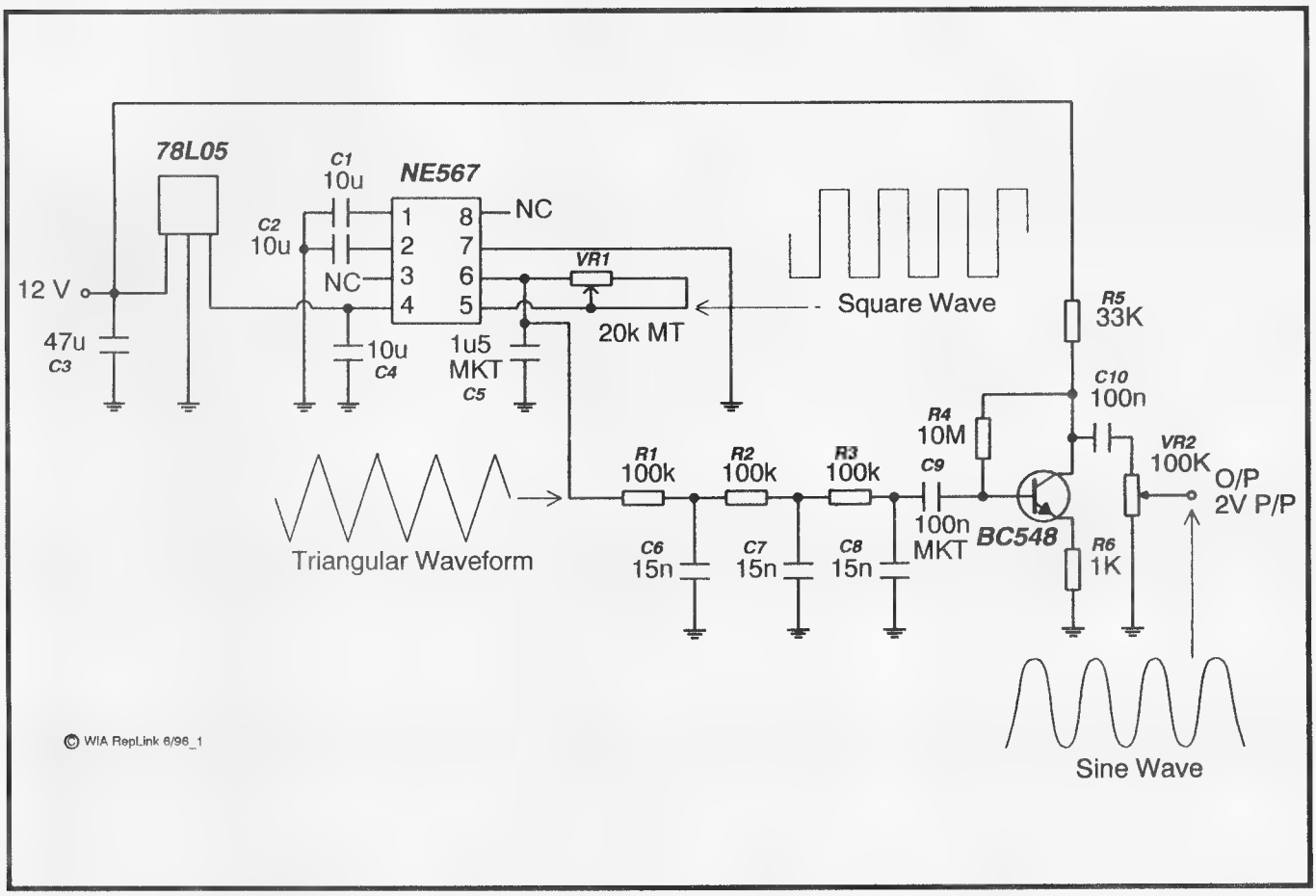


Figure 1 – CTCSS Tone Encoder

VHF/UHF – An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

Carnarvon OTC Dish

From Carnarvon, David VK6ID advises that the old OTC dish has been given to the town for tourism purposes.

The Shire President's husband, **Wally VK6MN** and David would like to see a VHF/UHF "get-together" at Carnarvon in 1997 to use the dish for amateur radio purposes, plus any other appropriate amateur activities. I will be discussing the matter with David but, in the meantime, any suggestions regarding what form the gathering might take could be faxed or written to me for inclusion in any discussions.

On-the-Air

Ron VK3AFW writes that winter might be approaching but the tropo has not yet disappeared. On 144 MHz – 5/5: VK7XR to VK2TWR 5x3, distance about 600 km. 8/5: VK3TMP to VK3AMH and VK5ACY. 15/5: 2212 VK3AFW to VK7XR 5x4. 16/5: 1320 VK2TWR to VK7XR 5x4 and then on 432 same stations at 5x6; 2212 on 144 VK3AFW to VK7XR 5x2. 19/5: VK7XR to VK2TWR, VK3ZQB, VK5NC and VK5DK.

Alan Johnson VK2DXE from Pyrmont, Sydney reports reasonable success from Sydney. His location is one km west of the city centre and not the best for VHF operation; however, using a 13 element K1FO Yagi to a pair of 4CX250Bs on 144 MHz, he has worked VK1, 2, 3, 4, 5, 7, ZL and FK8.

Alan said: *The Eta Aquarids meteor shower, which peaked 4 and 5 May local, created some excitement in Sydney due to the peak falling on a weekend and the best time for north/south paths coinciding with the regular weekend aircraft enhancement activity. I believe that Ross VK2DVZ worked VK3AUU and VK3AMZ on both mornings by quick action during good meteor bursts, and then VK3BRZ on 5/5. I worked VK3AMZ at 2240 on 5/5 at 5x3. It was interesting to hear so many stations from the south talking at the same time – it was a matter of grabbing the strongest signal.*

A sked with Joe VK7JG on 3/5 at 2230 resulted in signals both ways but failure to complete. They finally completed a two-way contact at 2205 on 4/5, using a 50 second burst to produce signals 5x3/4. Alan believes this to be the first VK2 to VK7 two metre contact via meteors and would like to think it is the forerunner to increased interest in this mode.

Mike VK2FLR confirms the above information and adds that he was confined to listening to Alan VK2DXE work stations, plus the Mount Gambier beacon on 144.550 MHz, which produced some solid bursts on the Sunday morning.

Mike again makes a plea for participation from Adelaide: *The excuse that the Adelaide Hills are in the way for Adelaide-Sydney paths does not wash with meteor scatter. Since the optimum take-off angle is nine degrees, simple trigonometery tells us that to get over a (say) 1000 metre obstruction for a nine degree angle, you need only to be 6.3 km away. If you can work Sydney on Es, you can do it on meteors. So over to the Adelaide gang.*

A letter from **Joe VK7JG** (he said the last one was five years ago!) also confirms the meteor contacts and he was particularly pleased to work Alan VK2DXE for the first VK7 to VK2 meteor contact. Joe said he has listened many times when VK3s are working VK2 via aircraft enhancement, but has heard no signals.

Joe needs to work VK6 to complete WAS on two metres. The recent contacts to Perth from Victoria and South Australia did not extend to Tasmania. He uses an Icom two metre base rig with a Mutek front end, 15 element quad Yagi at 14 metres and a masthead amplifier. A conduction cooled 8873 triode linear runs about 400 watts input.

Alan VK2DXE now has a copy of the meteor scatter prediction software from **Rod VK4KZR**, and is happy for amateurs to contact him by phone on 02 552 2950 to arrange skeds using meteor propagation; this is being actively pursued by Mike VK2FLR and himself, but they would like to be joined by others around the country.

Charlie VK3BRZ from Lara writes that, despite the approach of winter, the south-east of Australia has not gone into hibernation. Experience over the past 15 years has taught him that good tropo conditions can be expected in April/May. He uses the Channel 0 sound carrier from Wagga TV as an indicator, it always being audible at his QTH.

On the evening of 8/5 John VK2KKZ (ex-VK2YEZ) at Griffith was 5x9 on two metres and worked by stations including VK3XPD, VK3TMP, VK3KLO, VK3KWA, and himself. Signals were almost as strong on 70 cm so, rather than waste an opening they chatted until one am.

At 1100 on Tuesday 14/5 a phone call from **Mark VK2EMA** at Tottenham, central NSW, revealed he was hearing their beacon. Contacts were 5x1/2 on 144. Another try at 1230 found signals at 5x4, but no success on 70 cm.

For the remainder of the week they kept morning and evening skeds, working each other with signals 5x1/5 over the 700 km all-land path. They plan to keep skeds several times a week to test the path for conditions with or without tropo enhancement. Despite several airfields on the path, Charlie does not believe their contacts are being influenced by aircraft enhancement. Due to the absence of operators, they cannot prove how far further north the ducts extend. Similar improved conditions should appear during August and September.

General News

The following points of interest are from *Internet Six News* which is updated daily. Due to geographic isolation and, therefore, unfortunate limitations of the VK5 BBS system, I do not have direct access to this information but, thanks to the kindness and interest of John VK4FNQ in Townsville, I receive the information via a computer disk, allowing me to select those items of general interest to southern hemisphere operators.

Georgia Expedition (4L) on 50 MHz

This was to take place from 14 June to 26 June 1996 in Grid LN21. It is mentioned here as it is a country not normally open to 50 MHz operation due to cable television on Channel R1.

After long preparation, a group of Dutch radio amateurs (most of them members of the UKSMG) will activate the Republic of Georgia during the coming Es season; the prefix is 4L (suffix kept secret to keep pirates away). The main independent station will be continuously on the air with 1 kW ERP, located some 70 km NW of the capital of Tbilisi (Tiflis). During lack of propagation, a beacon will be active on 50.123 MHz. The ARRL has announced this as a new DXCC country.

Lord Howe Island

On Lord Howe Island, VK9YQS QF98 is active from 2200z daily using 180 watts and a ground plane. Doug will QSL direct via Doug Speedy, Lord Howe Island NSW 2989. He is QRV until September 1996 and then hopes for VK0 Macquarie Island.

Life Member

From the May-June issue of the *Geelong Amateur Radio Club Journal*, comes advice that **Chas Gnaccarini VK3BRZ** was awarded Life Membership at their recent AGM and will be presented with his medallion at the June meeting.

Part of the accompanying citation drew the attention of members to the many years of dedicated service given by Chas to amateur radio and the GARC, based upon the philosophy that knowledge acquired should be knowledge shared. This was put into practice when Chas offered to assist in the AOCP classes, act as an invigilator, and conduct AOCP exams on behalf of the WIA.

I would like to add my personal congratulations for a well deserved award and thank Chas for the contributions, spread over many years, that he has made for inclusion in my monthly columns.

Beacons

A fax from **Chris Schulz VK8KCS,** Secretary of the Alice Springs Amateur Radio Club, advises that the Alice Springs beacon VK8RAS is now operating on 50.047 and 144.485 MHz using 20 watts CW ident and 1/4 wave vertical antenna to each beacon. The equipment is located at Radio 8HA studios, 8 km south of Alice Springs.

All six VK5 beacons, as detailed in the February issue, are now operating. **David VK5KK** says work is proceeding on beacons for 3.4 and 5.6 GHz. When completed, this will be the most comprehensive beacon installation, from the one position, in Australia, possibly anywhere! Later, a 24 GHz beacon is a possibility.

North America

Emil Pocock W3EP, writing *The World Above 50 MHz* for June *QST,* heads his column *The Transatlantic Season*, in which he refers to the unprecedented 32 days of 50 MHz Es propagation between North America and Europe during June and July 1995, with path distances commonly exceeding 4000 km.

Whilst there is no way to tell if 1996 will be as good as, or better than, 1995, many stations will be on the alert for contacts across "the pond".

Emil writes: *It does not take a super station to work Europeans on 50 MHz, even from the centre of the country. Many 10 watt stations with small Yagis on both sides of the Atlantic made the grade last year. By far the biggest problem was QRM, especially within the 50.100 to 50.125 DX window. Stations in the Mid-western US, as well as in Central and Eastern Europe, had trouble making contacts due to crowding near the lower portion of the band. Weak signals often hampered efforts as well. The best advice, leading stations on both sides of the Atlantic give, is to use CW and spread out.*

North American stations would do better by giving the DX calling frequency, 50.100 MHz, a wide berth at all times. Leave the calling frequency clear for DX stations to call CQ. If you actually hear a new DX station on 50.110 then, by all means, answer if you wish, but then clear out quickly and give others a chance. Resist the temptation to call CQ yourself on 50.110, even when the band seems dead. You may hear nothing and assume the frequency is unoccupied, but there are always plenty of stations listening for weak signals. Your CQ can ruin the chances for many others.

If the band is dead, try calling CQ on CW around 50.100 MHz or on SSB just below 50.125. DX stations have the same problems we do: crowding around the DX calling frequency. They will find you much easier and faster if you are in the clear. Once it is obvious the band is open, spread out even further. CW stations can go down to 50.080 before they seriously interfere with beacons. Both CW and SSB stations have several hundreds of kHz above 50.125. The European calling frequency is 50.200 MHz and Europeans can commonly be found considerably higher than that. Spread out!

The above is also good advice for VK and ZL stations and we would do well to heed it. There is still little response to my previous suggestion to use 50.130 MHz as our main calling frequency, especially during Es contacts. Don't you like the idea?

I note, also, that there is increased interest towards the Brendan Trophies, being offered for the first transatlantic contact between North America and Europe on 144 MHz using terrestrial modes of propagation, probably Es or tropospheric ducting. A few Atlantic-facing two metre beacons are already operating from the eastern sectors of the continent and others will follow. I expect that when the opening does eventuate, as is so often the case, many stations will make the crossing on the same day.

This leads me to query why central and western VK find it so difficult to work New Zealand on two metres. During our last Es season ZLs worked many VK4s, plus stations in VK1, VK2, VK3 and a lone VK7, but no VK5s, VK6s or VK8s.

I ran a few distance checks through the computer and found Perth to Auckland at 5483 km, Christchurch 5191 and New Plymouth on the west coast of the North Island at 5417 km. Distances from Albany are about 350 km shorter in each case. Adelaide to Auckland is about 3255 km, Christchurch 3086 km and New Plymouth 3231 km.

The distances from ZL to Perth are certainly greater by about 1000 km than those across the Atlantic, while those to Adelaide are about 1000 km shorter than the Atlantic crossing! The existing VK5 to ZL two metre record was set on 15/1/86 when VK5ZEE worked ZL1HH for a distance of 3458.8 km. The distance is greater than to Adelaide because I believe VK5ZEE was located well north of Adelaide near Port Augusta or Woomera.

If we are to work VK5-ZL again then we need to stimulate some interest. But a contact between VK6 and ZL, particularly between Perth and ZL, would set the world talking! Dedication at both ends will be needed for it to happen but, if it is going to happen by Es, it will need to be done in the next year or two while in the low part between cycles when Es seems to be at its best.

Good tropo paths between Perth and ZL may be hampered by the large land mass of Tasmania being in the way, but it would be a person lacking in wisdom to say the path will never be bridged! Never is a long time.

Closure

My packet directory seems to be sadly lacking in file entries since it was established. I would welcome information directed to my callsign as it seems to arrive here, while info on VHFSIX, VHFNET and 50 MHz fails to arrive!

Closing with two thoughts for the month:

1. The natural flights of the human mind are not from pleasure to pleasure but from hope to hope, and

2. The trouble with the public debt is that private individuals have to pay for it.

73 from The Voice by the Lake.

**PO Box 169, Meningie SA 5264*
Fax: (085) 751 043
Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC

ar

VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1		GPO Box 600 CANBERRA ACT 2601
VK2		PO Box 73 TERALBA NSW 2284
VK3	Inwards	Box 757G, GPO MELBOURNE VIC 3001
	Outwards	40G Victory Blvd ASHBURTON VIC 3147
VK4		GPO Box 638 BRISBANE QLD 4001
VK5		PO Box 10092 Gouger St ADELAIDE SA 5001
VK6		GPO Box F319 PERTH WA 6001
VK7		GPO Box 371D HOBART TAS 7001
VK8		C/o H G Andersson VK8HA Box 619 HUMPTY DOO NT 0836
VK9/VK0		C/o Neil Penfold VK6NE 2 Moss Court KINGSLEY WA 6026

Audio

Some Thoughts on "Ham Band" Audio

Felix Scerri VK4FUQ has some suggestions about the quality of transmitted audio heard on the amateur bands.*

People who know me will probably know of my almost obsessive interest in audio and the subject of high fidelity. "What's that got to do with ham radio?" you may ask. Well, actually, quite a lot.

Listening around the HF, and even the VHF ham allocations, I get the impression that the general standard of audio transmitted is not as good as it should be. By "not as good", I mean such things as light sounding audio, the result of insufficient audio drive, lack of clarity, overdrive distortion, and various degrees of RF feedback and power supply "FMing". They are all, unfortunately, common, at least in my experience.

I believe that the "black box" nature of equipment today has a lot to do with this as, these days, it is simply a matter of "turn it on and talk". A shame, I think. Many amateurs would say "readable five audio" is good enough. However, I don't agree.

In my experience there is nothing as readable and non-fatiguing as a well modulated signal from a good quality audio program source, regardless of transmitted audio bandwidth. My own set-up is an example of this. On HF I use a Shure SM-58 vocal performance dynamic microphone (originally part of my home studio), with an audio pre-amp of my own design working into a stock standard IC-735, with audio levels adjusted for optimum modulation with my voice. I'm consistently told it sounds magnificent. Yes, it does present a silly level of overkill, but it does, in the end, illustrate the point.

For those who do not wish to go this far, yet still aspire to good transmitted audio, I'd like to offer this advice. "Listen!" The "black box" mentality has meant that very few of today's amateurs actually listen to their own transmitted audio, as was once quite common in the earlier days of extensive "home-brewing".

If you have a separate station receiver, then I suggest you use it. In my own shack, my trusty old FRG-7 serves this purpose. Don some headphones and have a good, critical listen.

You may be shocked, or pleased. Experiment with such things as microphone gain adjustment, microphone position, effect of speech processing, even different microphones! Such close field testing should easily reveal any serious problems such as RF feedback or "FMing".

Adjustment of sideband carrier oscillators may be necessary if something is seriously amiss here, although I feel that most modern transceivers are okay in this respect.

Beware of such things as back panel "tone" controls. My IC-735 has one, which was factory set at full treble cut. It took me quite a while to work that one out!

Enlisting the assistance of a nearby amateur with a similar interest is a good idea. If you persevere, I am sure you will find the efforts definitely worthwhile. You might actually enjoy the investigations or, even worse, you may even become an audio fanatic like me!

**9 Garbutt Street, Ingham QLD 4850*

ar

Pounding Brass

*Stephen P Smith VK2SPS**

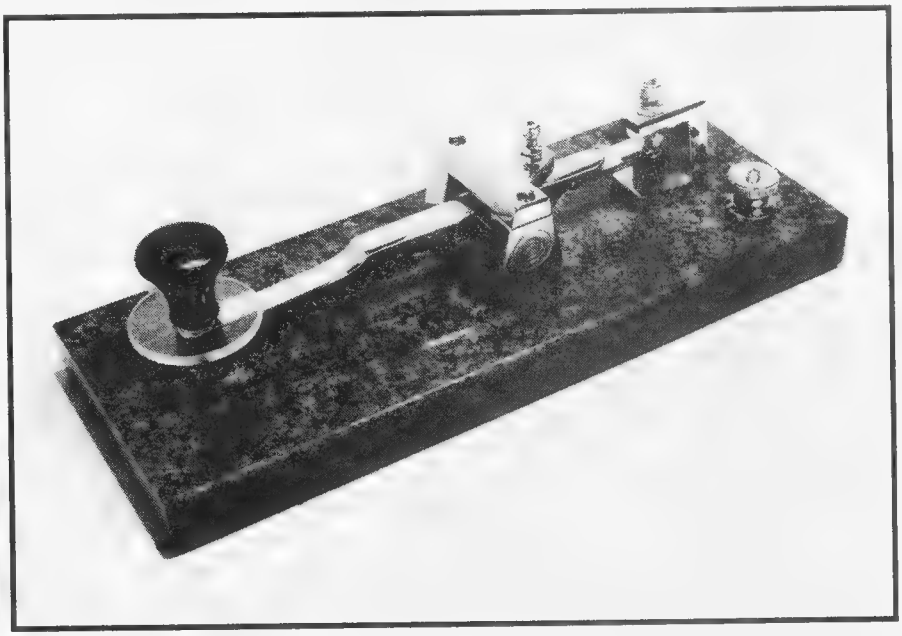
Golden Section Morse Keys

To conclude this series, I present the last of the Dr Jim Lycett PhD, G0MSZ, technical drawings in relation to his Golden Section Morse keys. Refer to page 47 of the May 1996 issue of *Amateur Radio* for the parts list referenced to the circled numbers on this technical drawing.

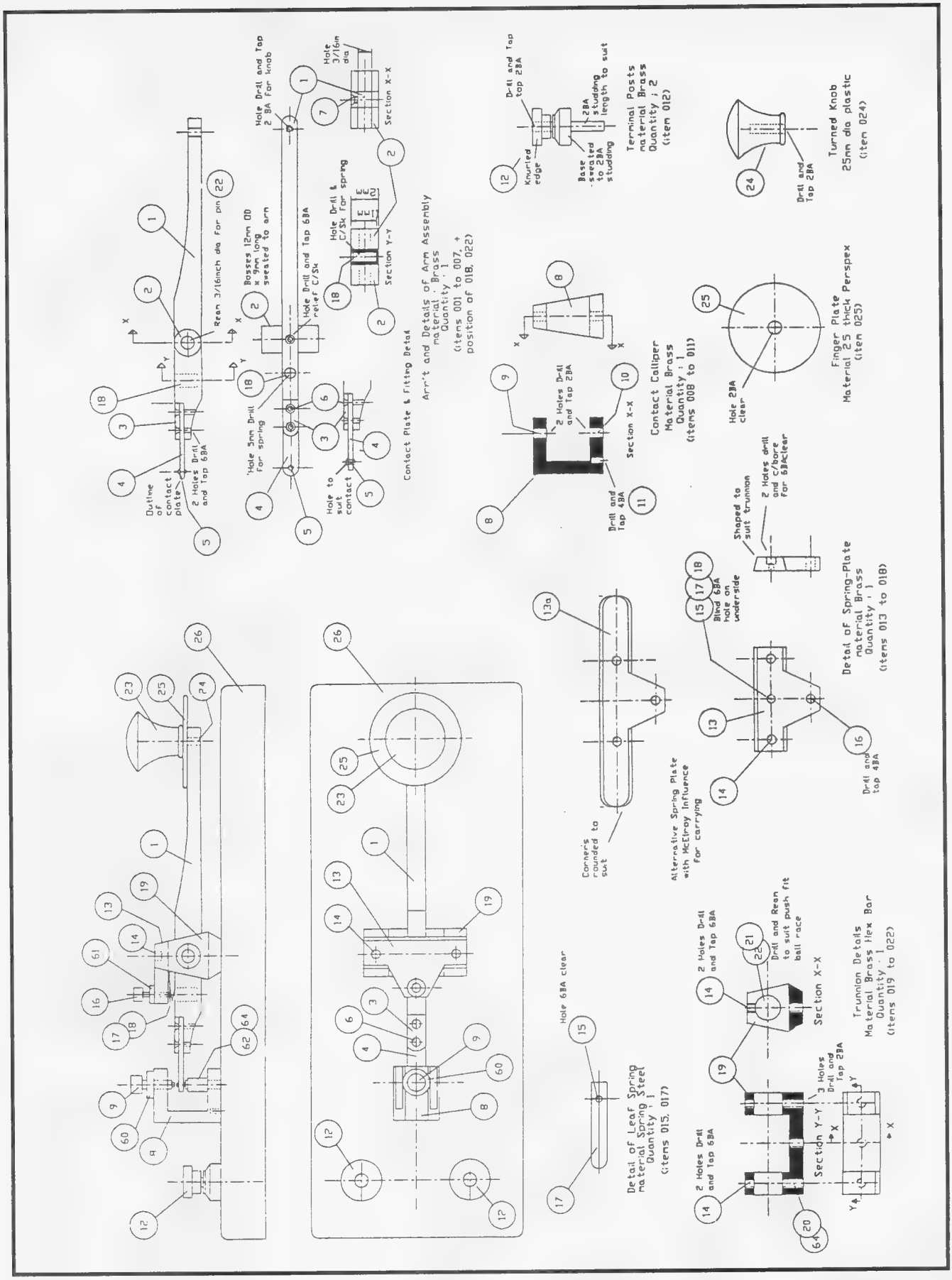
I would appreciate any feedback about construction of one or both types of Dr Lycett's Morse keys.

In coming issues we will look at Bencher Paddles, the new QRP Plus Tx/Rx from Index Labs and, to conclude, the new CD-Rom from the RSGB entitled Instant Morse.

**PO Box 361, Mona Vale NSW 2103*



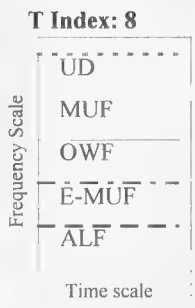
Amateur Radio – helping our community



Golden Section Morse key – assembly details.

HF PREDICTIONS

Evan Jarman VK3ANI



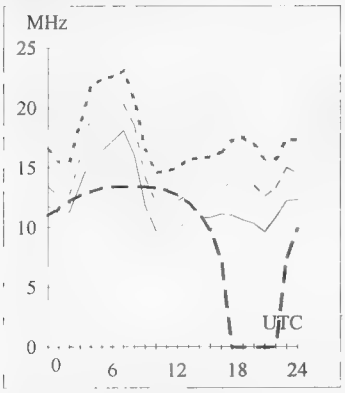
These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also indicate a possibility of communication (percentage).

The frequencies identified in the legend are:-

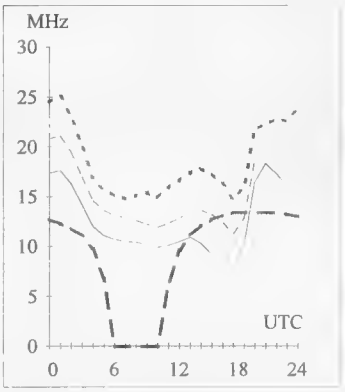
Upper Decile (10%)
Maximum Useable Frequency (50%)
E layer MUF
Optimum Working Frequency (90%)
Absorption Limiting Frequency

The predictions were made by one of the Ionospheric Prediction Service Stand Alone Prediction Systems. The T index used is shown above the legend. The Australian terminal azimuth (degrees), path length (kilometres) and propagation modes are also given for each circuit. **ar**

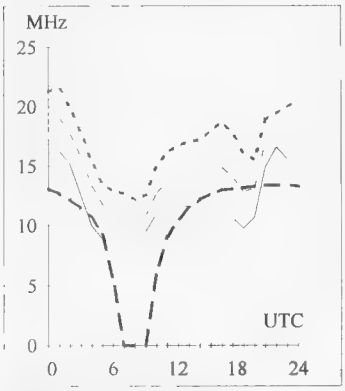
Adelaide-Oslo 294
First 0-5 Short 15632 km



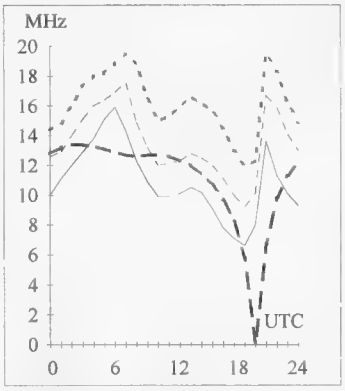
Brisbane-Atlanta 68
First 0-5 Short 14544 km



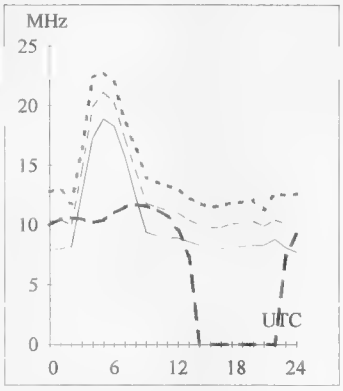
Adelaide-Ottawa 58
First 0-5 Short 16901 km



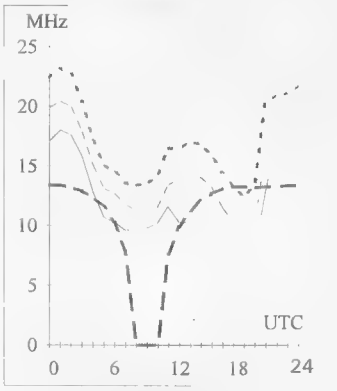
Brisbane-London 327
First 0-5 Short 16526 km



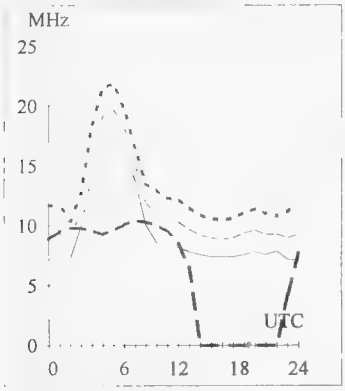
Canberra-Harare 239
Second 4F 3-4 4E 0 Short 11222 km



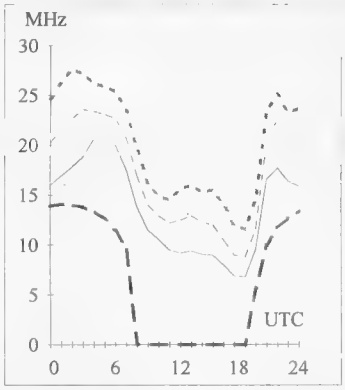
Darwin-Atlanta 50
First 0-5 Short 15737 km



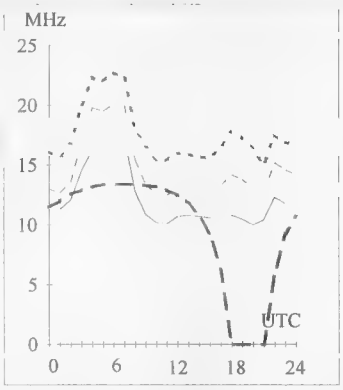
Adelaide-Pretoria 238
Second 4F 4-6 4E 0 Short 10065 km



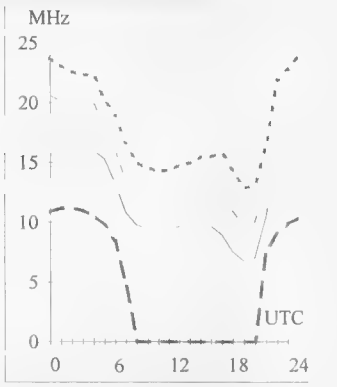
Brisbane-Tokyo 348
First 2F 0-3 2E 0 Short 7159 km



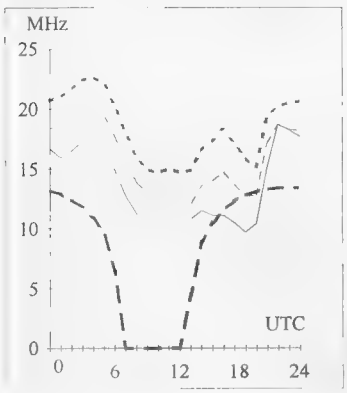
Canberra-Rome 295
First 0-5 Short 16217 km



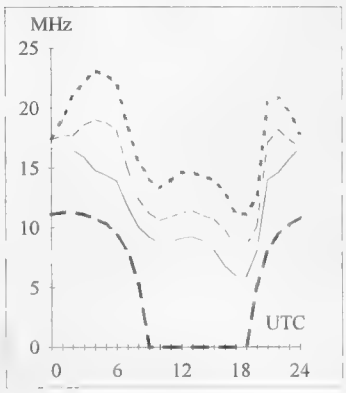
Darwin-Auckland 130
First 2F 4-6 2E 0 Short 5135 km



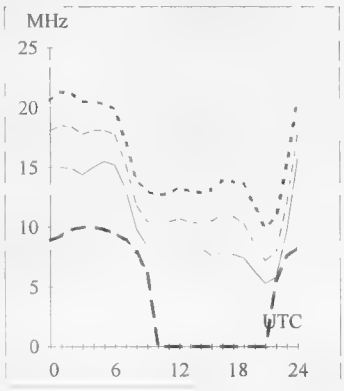
Adelaide-Seattle 51
First 0-5 Short 13414 km



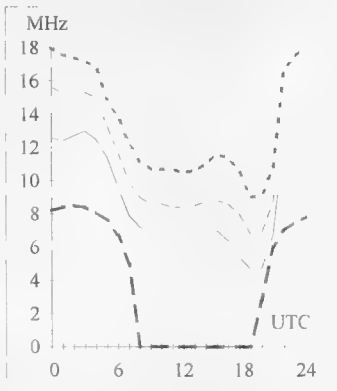
Brisbane-Tokyo 348
Second 3F 6-11 3E 0 Short 7159 km



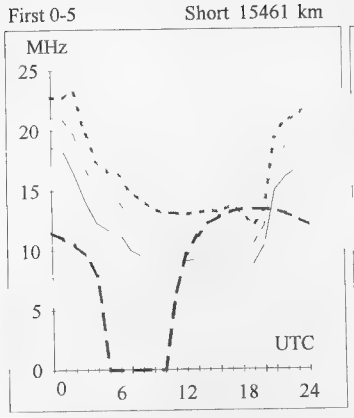
Canberra-Singapore 301
Second 3F 8-11 3E 0 Short 6211 km



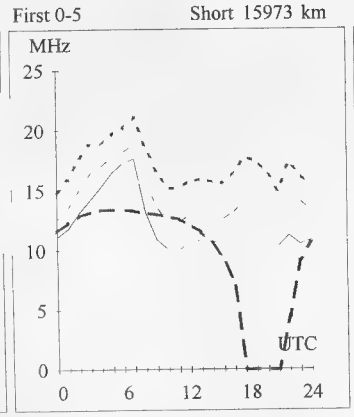
Darwin-Auckland 130
Second 3F11-14 3E2 Short 5135 km



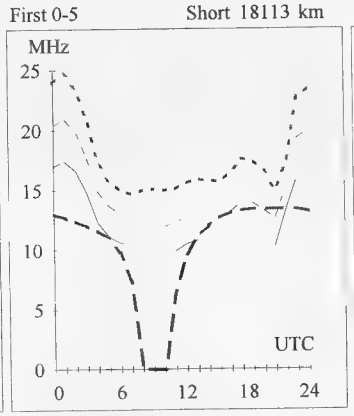
Hobart-Atlanta 85
First 0-5 Short 15461 km



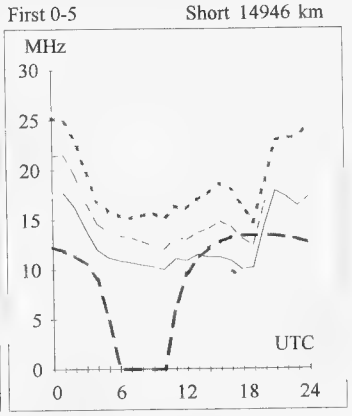
Melbourne-Berlin 310
First 0-5 Short 15973 km



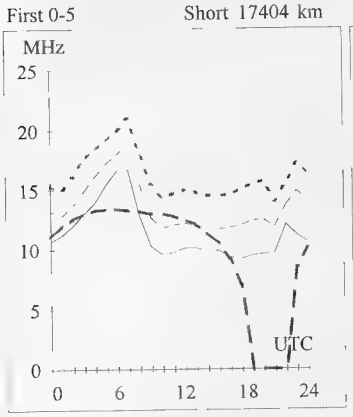
Perth-Atlanta 78
First 0-5 Short 18113 km



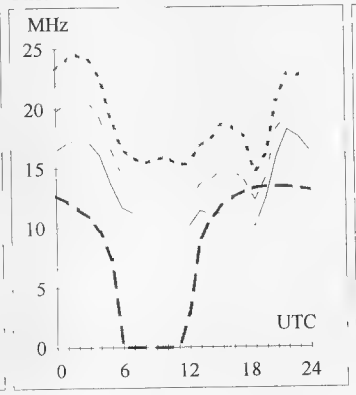
Sydney-Atlanta 74
First 0-5 Short 14946 km



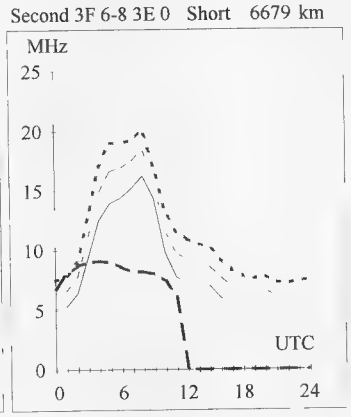
Hobart-London 303
First 0-5 Short 17404 km



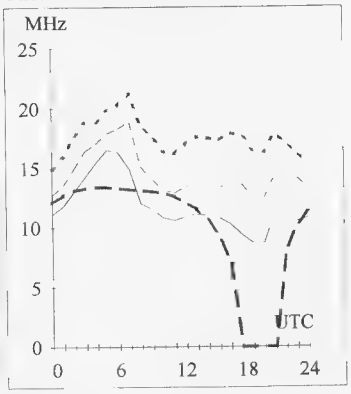
Melbourne-Denver 65
First 0-5 Short 14104 km



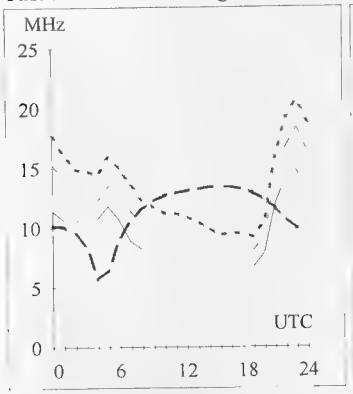
Perth-Marion Island 231
Second 3F 6-8 3E 0 Short 6679 km



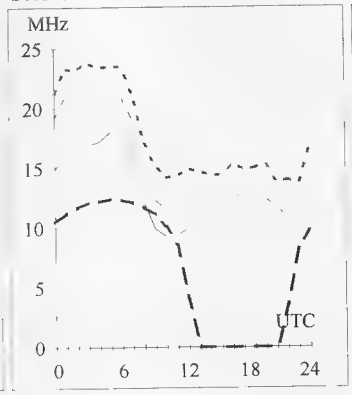
Sydney-Prague 311
First 0-5 Short 16075 km



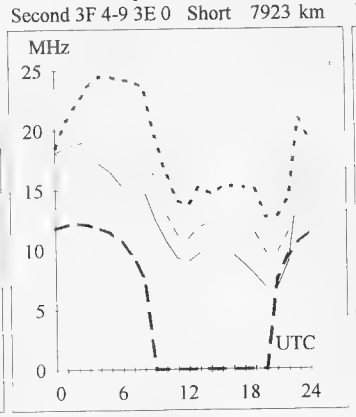
Hobart-London 123
First 0-5 Long 22620 km



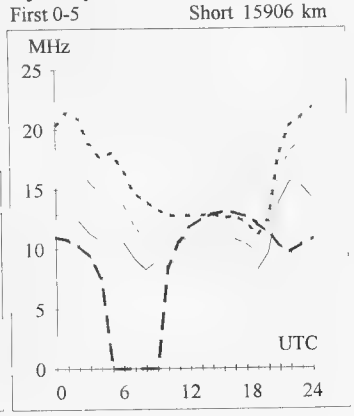
Melbourne-Lahore 306
Second 4F 4-8 4E 0 Short 10635 km



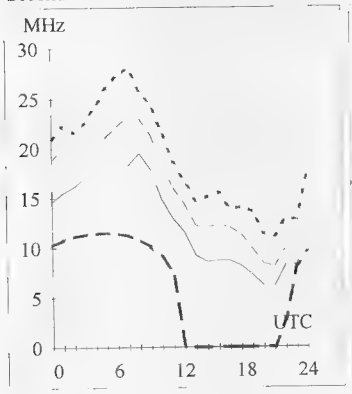
Perth-Tokyo 20
Second 3F 4-9 3E 0 Short 7923 km



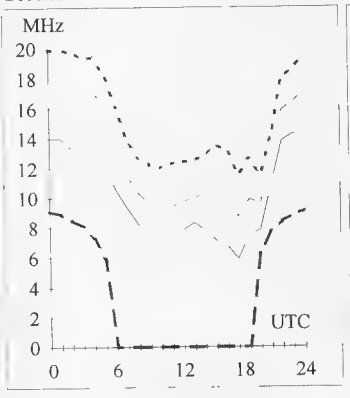
Sydney-Surinam 133
First 0-5 Short 15906 km



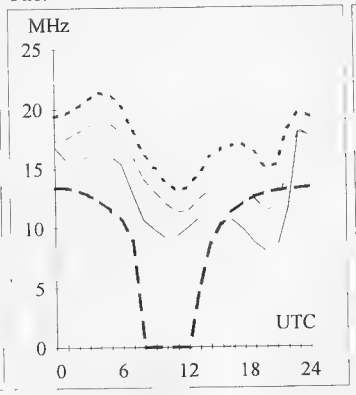
Darwin-New Delhi 309
Second 3F 5-12 3E 0 Short 7347 km



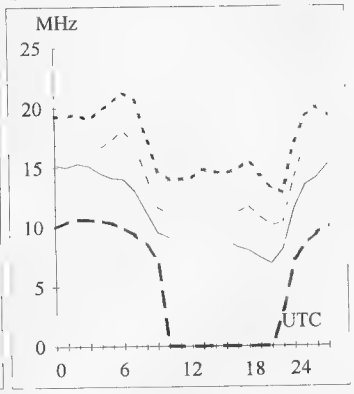
Melbourne-Suva 65
Second 2F 9-11 2E 0 Short 3913 km



Perth-Vancouver 50
First 0-5 Short 14824 km



Sydney-Vladivostock 346
Second 4F 7-12 4E 0 Short 8785 km



HAMADS

TRADE ADS

• **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.

• **WEATHER FAX programs** for IBM XT/ATs *** "RADFAX2" $35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

• **HAM LOG v.3.1** – Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

• **Kantronics KPC-3 packet controllers**, new, some slightly used. $150 – $200. Ph Adrian (064) 525 555 (W). Smart Radio Systems P/L.

• For all radio amateurs. **The Electronic Data Book for Homebrewers and QRPers.** 1996. Editors Paul Harden NA5N and Richard High W0HEP. $25.00 (plus $4.00 P&P within Australia). VK5AKZ Secretary, CW Operators QRP Club, 41 Tobruk Ave, St Mary's SA 5042.

FOR SALE NSW

The ultimate big beam rotator, **prop pitch motor** in A1 condition, $350 ono; Complete set of **Hustler whip mobile ant** 3.5/7/14/21/28 MHz resonators, A1 condition, $300 ono. Art VK2AS (02) 416 7784.

Kenwood TS440S/AT xcvr A1 cond, $1,500 ono; Telex Hy-gain model **TH3JR-S** 10/15/20 m, one year old, $500. Peter VK2FFA phone (043) 24 4160 or fax (043) 23 2724.

Yaesu FT-901DM Tx/Rx comes complete with all cables, YD-148 base mike, manuals etc. Condition good, some mods carried out from CQ magazine. Asking $750 ono. Steve VK2SPS (02) 9999 2933 after 6.00 pm.

Collins S-Line Tx and Rx, includes manuals, spares, VOX, good condition; Two **Altos 3068 computers**, 4 Mb RAM, 300 Mb HDD each, system V Unix, all manuals. Adrian VK2ALF (064) 52 5555.

Icom IC-730 HF transceiver with mike, cables and manual, $625; **Yaesu FT-50** HF transceiver with FV-50B VFO cables, circuit, spare valves, $150 (brother to FT-200). Bob VK2CAN QTHR (02) 416 3727.

Fluke 207-3 VLF receiver – Comparator, $375; **Lavoie AN/URM81** 100 to 500 MHz frequency meter with transit case, $225; **Teac R-310** professional stereo r-r tapedeck, $450. All have documentation. I may haggle. Brian VK2GCE QTHR (02) 545 2650.

FOR SALE VIC

Tribander beam (USA built), $100; **Prop pitch rotator**, $85; Tubular welded cantilever **tower**, 50ft, with winch, free to be removed from site. Deceased estate Cohuna. Phone (054) 56 2989.

TE-23-M Min-beam Yagi antenna for 10, 15 & 20 metres and a **KR-400** rotator. Seen working if required. Instruction manuals for both, will not split, $500. A good buy. H. Lonsdale VK3DND QTHR.

Radio Amateur World Callbook on CD-Rom, all US and Int'l calls, $35. Damien VK3CD (054) 27 3121.

FOR SALE QLD

Icom IC-701 100 w 160 m to 10 m rig in good condition, manual, plus circuit supplied, also included is a 20 A power supply, $780 the lot. Licensed amateurs only. Chris VK4DCB (07) 5543 6053.

Yaesu FT-101ZD with manual mike boxes gc, $450; **RCA 833A** unused with connectors, $100; Offers for 2000+, mainly unboxed, **octal, miniature valves,** audio, receiving. Catalogue 85 c stamp. Hadgraft, 17 Paxton St, Holland Park Qld 4121 (07) 3397 3751 AH.

Deceased Estate VK4ADZ. HF transceiver; **Kenwood TS520S**, matching **Kenwood ATU**, microphone and 4 new spare finals. All in excellent, like new condition with manuals, $400 or ono. Keith VK4APQ (071) 52 7482.

Brains & Brawn! **Yaesu FT-767 & FL-7000**. All options fitted. **SP-767** phone patch speaker, FIF232 I/face, service manuals, vgc, $4995. Eddie VK4EET QTHR (07) 3801 3200 voice/fax. callsave@gil.com.au Internet.

HF SSB t'cvr, **PCM SSB102**, up to 10 channels, 100 W pep, $75; **Antenna mount** heavy duty mobile type with spring, $45 or base only $30. Eric VK4NEF QTHR (07) 3395 5327.

FOR SALE WA

Icom IC-720A HF transceiver, gen coverage, with AM and CF filter, manual s/n 10851, $650; **Yaesu YS-2000** peak reading wattmeter SWR, for 200, 1000, 2000 watts, 1.8-60MHz, solid metal box, to be connected to power outlet, s/n OE030990 gc, $130; Morse tutor **Datong model** D70, $150 ono. Emanuel VK6NEB (09) 276 2207.

FOR SALE TAS

Kenwood TS-850SAT t/ceiver, **SP31** ext speaker, near new; **Icom FL102** AM filter suit IC760, IC761, IC765, IC575; **Kenwood YK885-1** 2.4 kHz filter for TS450, 690, 850, 950. Above new condition. Will accept offers. Allen VK7KAN (003) 27 1171.

WANTED NSW

Mecograph or the **McDonald Pendograph** or any unusual Australia keys or jiggers. Pay top dollar for any of the above. Steve VK2SPS (02) 9999 2933 after 6.00 pm.

WANTED VIC

2C39 Tx tubes. Also **811A**. **Command Tx** any freq but unmod. **Bowden cables** for Command RX and mounting rack. VK3IZ, 22 Hugh St, Metung Vic. (051) 56 2053.

WANTED QLD

Any condition **Geloso AM transmitter**, will pay top money. Ray VK4RH (07) 3299 3819.

Heathkit 6 m amplifier, Heathkit **2 m all-mode transceiver**, Heathkit **SB200** amplifier, Heathkit **VHF SWR-power meter**, Heathkit **HF SWR-power meter**, Heathkit rotary **coax switch**, Heathkit **HW16, HW101, DX40, DX60** transmitter/transceiver for operational Heathkit Museum. Contact "Doc" VK4CMY PO Box 24, Dalveen Qld 4374 or phone (076) 85 2167 before 8pm please. Vietnam Veterans Wireless Group.

WANTED SA

Still looking for **Gonset GSB-100 Tx h/book and/or circuit**. Copies OK, please check your files. Also wanted **Bowden cables** for Bendix MN-26C receiver, Eddystone 888 receiver. A Gluis VK5AAQ QTHR (08) 322 1010 AH.

Copies of manuals for Uniden 20/20 and Kenwood TS-820 transceivers. Also wanted **PTT Dynamic mic 50 k for Yaesu FT200**. Geoff VK5NDX QTHR (08) 296 7496.

WANTED WA

Technical information diagrams or charts for **Royce 40 chan UHF mobile CB radio model AUS-100**. Ron VK6FD QTHR (09) 362 1170.

MISCELLANEOUS

• THE WIA QSL Collection (now Federal) requires **QSLs**. All types welcome especially rare DX pictorial cards special issue. Please contact Hon. Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

ar

Editor's Comment

Continued from page 2

World War II jeep. Harry is the only Queensland veteran of the 1915 Gallipoli campaign and there are only about three survivors left in the other States. Oddly enough, it was Harry's first ANZAC Day march; and he doesn't look a day older than when he appeared on our front cover for his 100th birthday in December 1991.

At that time we inquired whether Harry could be the oldest licensed amateur in the world, and no one seemed disposed to contest it. Subsequently, an amateur centenarian "signed-off" (in Vermont, I think) who would have been Harry's only competition for the title of "World's Oldest Amateur". See you in the next ANZAC Day march, Harry? Maybe with a hand-held? Thanks to Fred Lubach VK4RF for sending in the Courier-Mail picture.

Since amateurs only form one thousandth of the population in general, these three examples of newsworthy people are probably well ahead of statistical expectations. 73 to you all!

Bill Rice VK3ABP
Editor
ar

WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 144.975 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5RCW	Continuous on 144.975 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 4 wpm to 11 wpm
VK6WIA	Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details: eg Name, Address, Telephone Number (and STD code), on both form. Please print copy for your Hamad as clearly as possible.
* Eight lines per issue free to all WIA members, ninth line for name and address Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.
* Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
* Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadlines as indicated on page 1 of each issue.
* QTHR means address is correct as set out in the WIA current Call Book.
* WIA policy recommends that Hamads include the serial numb,er of all equipment offered for sale.
* Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

	Division Address	Officers			Weekly News Broadcasts		1996 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Philip Rayner John Woolner Bernie Copier	VK1PJ VK1ZAO VK1KOX	3.570 MHz LSB, 146.900 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Secretary Treasurer (Office hours Web:http://sydney.dialix.ozau/~wiansw e-mail address: wiansw@sydney.dialix.oz.au	Michael Corbin Eric Fossey Eric Van De Weyer Mon-Sat 11.00-14.00 Mon 1900-2100)	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530)	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st and 3rd Sunday of the month, starts 10.30 am. Primary frequencies 1.840 AM, 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH and VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Treasurer	Geoff Sanders John Stevens John Presotto	VK4KEL VK4AFS VK4WX	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Garry Herden Maurie Hooper Charles McEachern	VK5ZK VK5EA VK5KDK	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Secretary Treasurer	Cliff Bastin Mark Bastin Bruce Hedland-Thomas	VK6LZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 5 Helen Street Newstead TAS 7250 Phone (003) 44 2324	President Secretary Treasurer	Andrew Dixon Robin Harwood Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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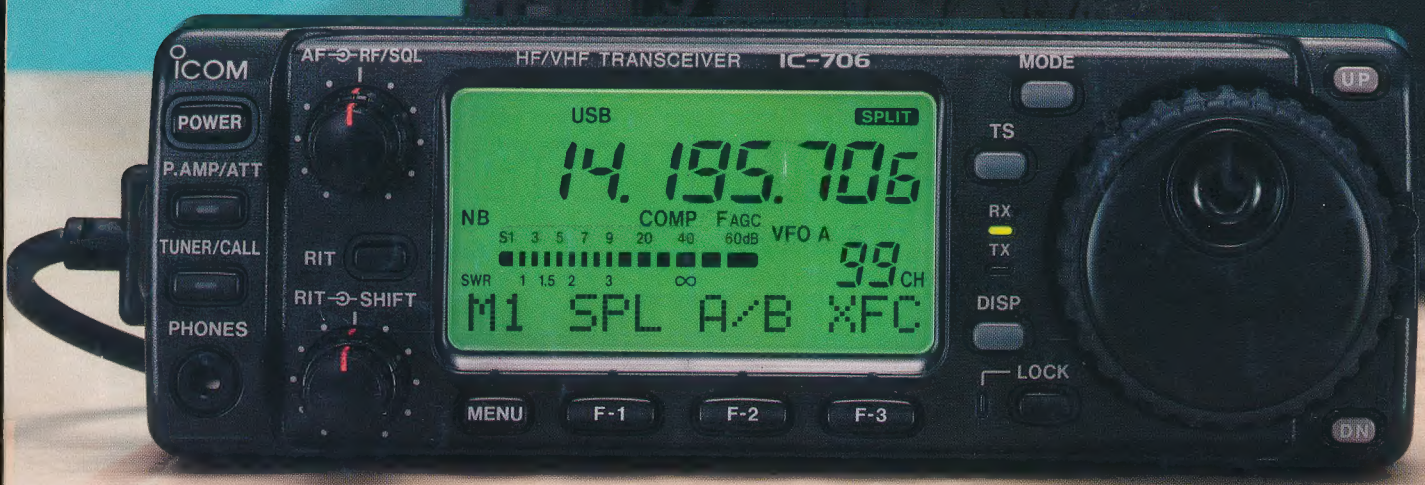
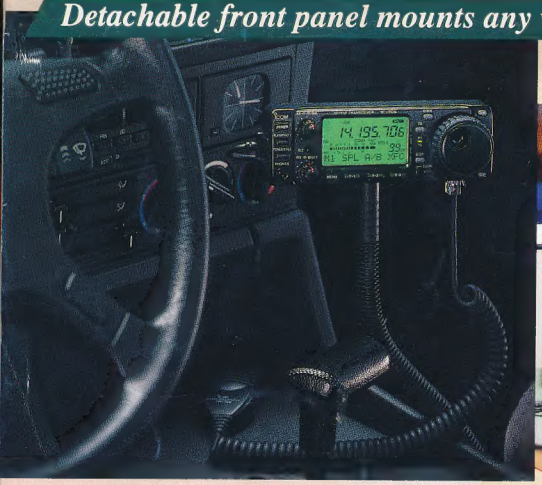
- 101 memory channels with dotmatrix display
- All mode including SSB, CW, RTTY, AM and FM.

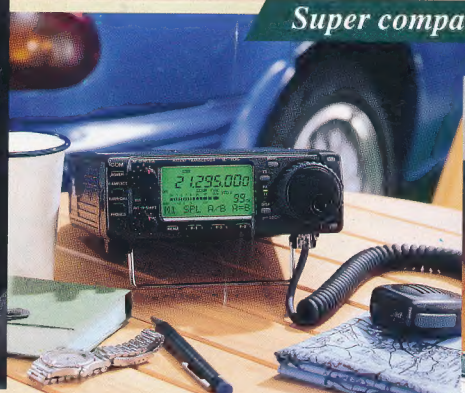


Detachable front panel mounts any where.

The front panel photo is **Actual size.**



Super compact at 167(W)×58(H)×200(D) mm



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